STATE LIFE INSURANCE CORPORATION OF PAKISTAN

BIDDING DOCUMENT

For

HIRING THE CONTRACTOR FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIRE FIGHTING / HYDRANT SYSTEM IN STATE LIFE BUILDING NO. 9 DR ZIAUDDIN AHMED ROAD, KARACHI

SINGLE STAGE TWO ENVELOPE PROCEDURE

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INVITATION FOR BIDS

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SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIRE FIGHTING / HYDRANT SYSTEM IN STATE LIFE INSURANCE CORPORATION OF PAKISTAN BUILDING NO. 9 DR. ZIAUDDIN AHMED RD, CIVIL LINES KARACHI.

Tender No: RED-KHI-FFS-SLB09/1

1. State Life Insurance Corporation of Pakistan (SLICP) invites tender through **EPAD**, under **single stage two envelope procedure,** from the experienced firms / contractors of the field registered with Income Tax/GST Department & who are on Active Taxpayers List of the Federal Board of Revenue **(FBR)** having valid PEC Registration in (C6 Category) and above and are eligible to handle the work **HIRING THE CONTRACTOR FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIRE FIGHTING / HYDRANT SYSTEM IN STATE LIFE INSURANCE CORPORATION OF PAKISTAN BUILDING NO. 9 DR. ZIAUDDIN AHMED RD, CIVIL LINES KARACHI.**
2. Interested eligible bidders may get the Bidding Documents, containing detailed terms and conditions etc. are available for download on EPAD's website **http://eprocure.gov.pk** free of cost. This advertisement is also available on **State Life** website **www.statelife.com.pk**
3. **Single Stage Two Envelope** bidding procedure shall be applied. **Bids must be submitted Electronically** through **EPAD**. Physical Bids will not be acceptable.
4. All bids (Technical & Financial Bids) must be accompanied by a Bid Security **Rs.500,000** in the format of a Pay Order / Demand Draft and hard Copy must be delivered to the office of Chief Engineer Real Estate Division, SLIC, Building No. 09, 5th Floor, Dr. Ziauddin Ahmed Road, Karachi on or before **18-02-2026** at **11:00 AM**. and upload the same on EPADs on or before. **11:00 AM**. Technical Bids will be opened at **11:30 AM**. on the same day, in the presence of bidders/their representatives who choose to attend at the same address.
5. Any bid not accompanied by an acceptable Bid Security shall be rejected by the Employer as non-responsive.
6. **SLICP** will not be responsible for any cost or expense incurred by Bidders about the preparation or delivery or EPAD submission of Bids. **Pre-bid meeting** will be held on in conference room SLICP on **12-02-2026** at **03:00 P.M.**
7. Date of opening of Financial Bids of Technically qualified bidders shall be notified at a later date after the Evaluation of the Technical Bids
8. **Note: All assessments and procuring procedure i.e. receiving, opening and awarding etc. shall be governed by the PPRA Rules 2004.**

CHIEF ENGINEER – REAL ESTATE DIVISION
State Life Building No. 9,
Dr. Ziauddin Ahmed Road, Karachi
Ph # 021-99206168

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

(Note: These Instructions to Bidders along with Bidding Data will not be part of the Contract and will cease to have effect once the contract is signed.)

A. GENERAL

IB.1 Scope of Bid

1.1 The Procuring Entity as defined in the Bidding Data hereinafter called "the Procuring Entity" invites bids for Firefighting / hydrant system and completion of works as described in these Bidding Documents, and summarized in the Bidding Data hereinafter referred to as the "Works".

1.2 The successful bidder will be expected to complete the Works within the time specified in Appendix-A to Bid.

1.3 Throughout these bidding documents, the terms 'bid' and 'tender' and their derivatives (bidder / tenderer, bid / tender, bidding / tendering etc.) are synonymous.

IB.2 Source of Funds

2.1 The expenditure on this project will be met from the through State Life own funds in currencies towards the cost of the Project specified in the Bidding Data and it is intended that these Funds will be applied to eligible payments under the Contract for which these Bidding Documents are issued.

IB.3 Eligible Bidders

3.1 This Invitation for Bids is open to all bidders meeting the following requirements:

a. Duly licensed by the Pakistan Engineering Council (PEC) in the category C6 and above.

b. Duly registered with FBR for Income Tax and reflected on Active Tax Payer list (ATL) of FBR for the mentioned works in the TOR's and BOQ's.

c. Is neither associated, nor has been associated, directly or indirectly, with the Consultants or any other entity that has prepared the design, specifications and other documents for the Project or being proposed for any position in the Project Management.

IB.4 One Bid per Bidder

4.1 Single Stage Two Envelope bidding procedure shall be applied. Bids must be submitted electronically through the EPAD. No Hard copy submission will be entertained.

IB.5 Cost of Bidding

5.1 The bidders shall bear all costs associated with the preparation and submission of their respective bids and the Procuring Entity will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

IB.6 Site Visit

6.1 The bidders are advised to visit and examine the site of Works and its surroundings and obtain for themselves on their own responsibility all information that may be necessary for preparing the bid and entering into a contract for Firefighting / hydrant system works. All cost in this respect shall be at the bidder's own expense.

6.2 The bidders and any of their personnel or agents will be granted permission by the Procuring Entity to enter upon his premises and lands for the purpose of such inspection, but only upon the express condition that the bidders, their personnel and agents, will release and indemnify the Procuring Entity, his personnel and agents from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of such inspection.

B. BIDDING DOCUMENTS

IB.7 Contents of Bidding Documents

7.1 The Bidding Documents, in addition to invitation for bids, are those stated below and should be read in conjunction with any Addenda issued in accordance with Clause IB.9.

1) Instructions to Bidders.
2) Bidding Data.
3) General Conditions of Contract, Part-I (GCC).
4) Particular Conditions of Contract, Part-II (PCC).
5) Specifications – Special Provisions.
6) Specifications - Technical Provisions.
7) Form of Bid & Appendices to Bid.
8) Bill of Quantities (Appendix-D to Bid).
9) Form of Contract Agreement.
10) Forms of Performance Security and Mobilization Advance Bank Guarantee.
11) Drawings.

12) Integrity Pact

7.2 The bidders are expected to examine carefully the contents of all the above documents. Failure to comply with the requirements of bid submission will be at the Bidders own risk. Pursuant to Clause IB.25, bids which are not substantially responsive to the requirements of the Bidding Documents will be rejected.

IB.8 Clarification of Bidding Documents

8.1 Any prospective bidder requiring any clarification (s) in respect of the Bidding Documents may notify the Procuring Entity in writing through EPAD. The Procuring Entity will respond to any request for clarification which he receives through EPAD earlier than 07 days prior to the deadline for submission of bids.

Scan Copy of the Procuring Entities response will be uploaded at EPAD for all purchasers of the Bidding Documents, including a description of the enquiry but without identifying its source.

IB.9 Amendment of Bidding Documents

9.1 At any time prior to the deadline for submission of bids, the Procuring Entity may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective bidder, modify the Bidding Documents by issuing addendum.

9.2 Any addendum thus issued shall be part of the Bidding Documents pursuant to Sub-Clause 7.1 hereof and shall be uploaded to EPAD for all purchasers of the Bidding Documents.

9.3 To afford prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Procuring Entity may extend the deadline for EPAD submission of bids in accordance with Clause IB.19.

C. PREPARATION OF BIDS

IB.10 Language of Bid

10.1 The bid and all correspondence and documents related to the bid exchanged by a bidder and the Procuring Entity shall be in the bid language stipulated in the Bidding Data and Particular Conditions of Contract. Supporting documents and printed literature furnished by the bidders may be in any other language provided the same are accompanied by an accurate translation of the relevant parts in the bid language, in which case, for purposes of evaluation of the bid, the translation in bid language shall prevail.

IB.11 Documents Accompanying the Bid

11.1 Each bidder shall:

(a) The Original Bid security must be submitted at the office of Chief Engineer, Real Estate Division, State Life Insurance Corporation Pakistan (SLICP), Building No. 09, Dr, Ziauddin ahmed Road, Karachi before closing date. Failure to do so will result in disqualification and it is important to upload its soft copy on **EPAD** as well.

(b) Submit a soft form of power of attorney authorizing the signatory of the bid to act for and on behalf of the bidder;

(c) Update the information indicated and listed in the Bidding Data and previously submitted with the application on EPAD for prequalification, and continue to meet the minimum criteria set out in the prequalification documents which as a minimum, would include the following:

(i) Evidence of access to financial resources along with average annual construction turnover;

(ii) Financial predictions for the current year and the two following years including the effect of known commitments;

(iii) Work commitments since prequalification;

(iv) Current litigation information;

(v) Availability of critical equipment.

(d) Furnish a Technical Proposal taking into account the various Appendices to Bid specially the following:

Appendix-E to Bid Proposed of Firefighting / hydrant system Schedule

Appendix-F to Bid Method of Performing the Work

Appendix-G to Bid List of Major Equipment

Appendix-K to Bid Organization Chart for Supervisory Staff

and other pertinent information such as mobilization program etc.

11.2 Bidders shall submit EPAD proposals of work methods and schedule, in sufficient detail to demonstrate the adequacy of the Bidders' proposals to meet the technical specifications and the completion time referred to in Sub-Clause 1.2 hereof.

IB.12 Bid Prices

12.1 Unless stated otherwise in the Bidding Documents, the Contract shall be for the whole of the Works as described in Sub-Clause 1.1 hereof, based on the unit rates and / or prices submitted via **EPAD** by the bidder.

12.2 The bidders shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Unit rate offered for an item shall be considered up to two significant decimals places for evaluation purposes. Items against which no rate or price is entered by a bidder will not be paid for by the Procuring Entity when executed and shall be deemed covered by rates and prices for other items in the Bill of Quantities. Corrections in rates and prices, if any, shall be made by crossing out, initialing, dating and re-writing.

12.3 All duties, taxes, and other levies payable by the Contractor under the Contract, as of the Base Date (defined 28 days prior to the latest date for submission of bids), shall be deemed included in the rates, prices, and the total Bid Price submitted by the Contractor through EPAD.

Any additional or reduced duties, taxes, or levies resulting from changes in legislation made after the Base Date shall be reimbursed to, or deducted from, the Contractor, as determined by the Engineer in accordance with Sub-Clause 70.2 of the General Conditions of Contract Part-I. No other adjustments for price fluctuations shall apply.

IB.13 Currencies of Bid and Payment

13.1 The unit rates and the prices shall be quoted by the bidder entirely in **Pak Rupees** only**.**

IB.14 Bid Validity

14.1 Bids shall remain valid for the period stipulated in the Bidding Data after the Date of Bid Opening specified in Clause IB.22.

14.2 In exceptional circumstances, prior to expiry of the original bid validity period, the Procuring Entity may request that the bidders extend the period of validity for a specified additional period which shall in no case be more than the original bid validity period. The request and the responses there to shall be uploaded on EPAD. A bidder may refuse the request without forfeiting his Bid Security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his Bid Security for the period of the extension, and in compliance with Clause IB.15 in all respects. The bidder shall bear all costs to be incurred on such extensions.

IB.15 Bid Security

15.1 Each bidder shall furnish, as part of his bid, a Bid Security in the amount stipulated in the Bidding Data in Pak Rupees. [The bid security shall be submitted from the account of the firm/bidder/contractor who submits the bid].

15.2 The Bid Security shall be, Pay Order / Demand Draft in favor of state life

insurance corporation of Pakistan valid for a period 28 days beyond the Bid Validity date.

15.3 Any bid not accompanied by an acceptable Bid Security shall be rejected by the Procuring Entity as non-responsive.

15.4 The bid securities of unsuccessful bidders will be returned after the acceptance of bid by successful bidder.

15.5 The Bid security of successful bidder will be released upon submission of Performance Security.

15.6 The Bid Security may be forfeited:

a. if the bidder withdraws his bid except as provided in Sub-Clause 21.1;

b. In case of false information provided by the bidder

c. if the bidder does not accept the correction of his Bid Price pursuant to Sub-Clause 26.2 hereof; or

(c) In the case of successful bidder, if he fails within the specified time limit to:

(i) furnish the required Performance Security; or

(ii) sign the Contract Agreement.

IB.16 Pre-Bid Meeting

16.1 The Procuring Entity may, on his own motion or at the request of any prospective bidder(s), hold a pre-bid meeting to clarify issues and to answer any questions on matters related to the Bidding Documents or any other matter that may be raised at that stage. The date, time and venue of pre- bid meeting, if convened, is as stipulated in the Bidding Data. All prospective bidders or their authorized representatives shall be invited to attend such a pre- bid meeting.

16.2 The bidders are requested to submit questions, if any, through **EPAD** so as to reach the Procuring Entity not later than seven (7) days before the proposed pre- bid meeting.

16.3 Minutes of the pre-bid meeting, including the text of the questions raised and the replies given, will be transmitted without delay to all purchasers of the Bidding Documents through EPAD. Any modification of the Bidding Documents listed in Sub-Clause 7.1 hereof which may become necessary as a result of the pre-bid meeting shall be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to Clause IB.9 and not through the minutes of the pre-bid meeting.

16.4 Absence at the pre-bid meeting will not be a cause for disqualification of a bidder.

IB.17 Format and Signing of Bid

17.1 Bidders are particularly directed that the amount entered on the Form of Bid shall be for performing the Contract strictly in accordance with the Bidding Documents.

17.2 All appendices to Bid are to be properly completed and signed.

17.3 No alteration is to be made in the Form of Bid nor in the Appendices thereto except in filling up the blanks as directed. If any such alterations be made or if these instructions be not fully complied with, the bid may be rejected.

17.4 Each bidder shall prepare by filling out the forms completely and without alterations, specified in the Bidding Data, of the documents comprising the bid as described in Clause IB.7.

17.5 All filled documents shall be signed by a person or persons duly authorized to sign on behalf of the bidder pursuant to Sub- clause 11.1 (a) hereof. All pages of the bid shall be initialed and stamped by person persons signing the bid. All filled and signed stamp documents are submitted through EPAD. No need to submit hard copies of documents.

17.6 The bid shall contain no alterations, omissions or additions, except to comply with instructions issued by the Procuring Entity, or as are necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

17.7 Bidders shall indicate in the space provided in the Form of Bid their full and proper addresses at which notices may be legally served on them and to which all correspondence in connection with their bids and the Contract is to be sent.

17.8 Bidders should retain a copy of the Bidding Documents as their file copy.

D. SUBMISSION OF BIDS

IB.18 Sealing and Marking of Bids

18.1 Each bidder shall submit his bid through **EPAD** as under:

(a) The Contractor/ bidder must bid for relevant Lot and shall quote composite rates basis against each lot where applicable. The Tender and all documents relating to the Tender, exchanged between the contractor and the procuring Agency, shall be in English. Any printed literature furnished by the Contractor in another language shall be accompanied by an English translation which shall govern for purposes of interpretation of the Tender.

(b) The Tender shall be filled in / accompanied by the prescribed Forms, Annexes, Schedules, Documents, Brochures, Literature, etc. which shall be typed, completely filled in, stamped and signed by the contractor or his

Authorized Representative. Signed and stamped documents will be submitted through EPAD. If volume of the bid contains various set (s) of documents the same must be properly numbered and tagged.

(c) The Tender shall consist of proposals in one set i.e. the original Via EPAD.

(d) Proposal Form

(e) Undertaking (All terms & conditions and qualifications listed anywhere in this bidding /Bidding Documents has been satisfactorily vetted) and affidavit (Integrity Pact)

(f) Covering letter duly signed and stamped by authorized representative

(g) Certificate of Company / Firm Registration / Incorporation under the Laws of Pakistan

(h) Evidence of eligibility of the Bidder / Contractor and the Services

(i) Evidence of conformity of the Technical Compliance of Equipment/Services of Bidding /Bidding Documents

(j) List of firm's major clientele

(k) Submission of undertaking on legal valid and attested stamp paper that the firm is not blacklisted by any of Provincial Government Department, Agency, Organization or autonomous body or private sector organization anywhere in Pakistan.

(l) Valid Registration Certificate for Income Tax & Sindh Sales Tax

(m) Power of Attorney, if an authorized representative is appointed

(n) Price Schedule

IB.19 Deadline for Submission of Bids

19.1 Bids must be uploaded on EPAD on or before closing date & time. Instead of physical bid, only original bid security must be submitted at the office of Chief Engineer Real Estate Division before closing date. Soft copy of bid security must be uploaded at EPAD. Failure to do will result in disqualification or non-responsive.

19.2 The Procuring Entity may, at his discretion, extend the deadline for submission of bids by issuing an amendment in accordance with Clause IB.9, in which case all rights and obligations of the Procuring Entity and the bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

IB.20 Late Bids

20.1 Bid would not be uploaded after closing date and time. The mean the bidder is disqualified automatically. So, bidder should be uploaded their bids on EPAD

before closing date and time

IB.21 Modification, Substitution and Withdrawal of Bids

21.1 Any bidder may modify**,** substitute or withdraw his bid after bid submission on EPAD before closing date and time, after dead line modification, substitution and withdrawal of bids will not be possible

21.2 No bid may be modified by a bidder after the deadline for submission of bids except in accordance with Sub-Clauses 21.1 and 26.2.

21.3 Withdrawal of a bid during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in the Form of Bid may result in forfeiture of the Bid Security in pursuance to Clause IB.15.

E. BID OPENING AND EVALUATION

IB.22 Bid Opening

22.1 The Procuring Entity will open first Technical Bids on EPAD. Then the bids will be evaluated, and after bid evaluation process is completed then financial bids of technically qualified bidders will be opened on EPAD. The bidders' representatives who are present shall sign a register evidencing their attendance.

22.2 The bidder's name, total Bid Price, any discounts, bid modifications, substitution and withdrawals, the presence or absence of Bid Security and such other details as the Procuring Entity may consider appropriate, will be announced by the Procuring Entity at the opening of bids.

22.3 Procuring Entity shall prepare minutes of the bid opening including the information disclosed to those present.

IB.23 Process to be Confidential

23.1 Information relating to the examination, clarification, evaluation and comparison of bid and recommendations for the award of a contract shall not be disclosed to bidders or any other person not officially concerned with such process before the announcement of the final result of the bid evaluation which shall be done at least fifteen (15) days prior to issue of Letter of Acceptance and place the same on EPAD, PPRA or Authority's Website. The announcement to all Bidders will include table(s) comprising read out prices, discounted prices, price adjustments made, final evaluated prices and recommendations against all the bids evaluated. Any effort by a bidder to influence the Procuring Entity's processing of bids or award decisions may result in the rejection of such bidder's bid. Whereas any bidder feeling aggrieved may lodge a written complaint not later than fifteen (15) days after the announcement of the bid evaluation report; however mere fact of lodging a complaint shall not warrant suspension of the procurement process.

IB.24 Clarification of Bids

24.1 To assist in the examination, evaluation and comparison of bids, the Procuring Entity may, at his discretion, ask any bidder for clarification of his bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the Procuring Entity in the evaluation of the bids in accordance with Clause IB.27.

IB.25 Examination of Bids and Determination of Responsiveness

25.1 Prior to the detailed evaluation of bids, the Procuring Entity will determine whether each bid is substantially responsive to the requirements of the Bidding Documents.

25.2 A substantially responsive bid is one which

(i) meets the eligibility criteria;

(ii) has been properly signed;

(iii) is accompanied by the required Bid Security and

(iv) conforms to all the terms, conditions and specifications of the Bidding Documents, without material deviation or reservation.

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 Procuring Entity's rights or the bidder's obligations under the Contract; or

(iii) Adoption/rectification whereof would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

25.3 If a bid is not substantially responsive, it will be rejected by the Procuring Entity and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

IB.26 Correction of Errors

26.1 Bids determined to be substantially responsive will be checked by the Procuring Entity for any arithmetic errors. Errors will be corrected by the Procuring Entity as follows:

(a) where there is a discrepancy between the amounts in figures and in words, the amount in words will govern

(b) where there is a discrepancy between the unit rate and the line-item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern, unless in the opinion of the Procuring Entity there is an obviously gross misplacement of the decimal point in the unit rate, in which

case the line-item total as quoted will govern and the unit rate will be corrected.

26.2 The amount stated in the Form of Bid will be adjusted by the Procuring Entity in accordance with the above procedure for the correction of errors and with the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the corrected bid price, his bid will be rejected and the Bid Security shall be forfeited in accordance with Sub-Clause 15.6(c) hereof.

IB.27 Evaluation and Comparison of Bids

27.1 The Procuring Entity will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause IB.25.

27.2 In evaluating the bids, the Procuring Entity will determine for each bid the evaluated Bid Price by adjusting the Bid Price as follows:

(a) Making any correction for errors pursuant to Clause IB.26;

(b) Excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including competitively priced Day work; and

(c) Making an appropriate adjustment for any other acceptable variation or deviation, including discounts or other price modification in the bids.

27.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bid evaluation.

27.4 If the Bid of the successful bidder is seriously unbalanced in relation to the Procuring Entity's estimate of the cost of work to be performed under the Contract, the Procuring Entity may require the bidder to produce detailed price analyses for any or all items of the Bill of Quantities to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Procuring Entity may require that the amount of the Performance Security set forth in Clause IB.31 be increased at the expense of the successful bidder to a level sufficient to protect the Procuring Entity against financial loss in the event of default of the successful bidder under the Contract.

a. In case detailed rate analysis submitted with the bids is, in view of the Engineer, not convincing, the Head of the Procuring Entity on the recommendation of the Engineer may declare such bid as non- responsive without any forfeiture of bid securities and record reasons thereof.

b. The procuring entity may offer the contract to next lowest bidder after due diligence in the context of financial difference between such to bids or may advertise procurement opportunity afresh. (as per PPRA Rules)

F. AWARD OF CONTRACT

IB.28 Award

28.1 Subject to Clauses IB.29 and IB.33, the Procuring Entity will award the Contract to the bidder whose bid has been determined to be substantially responsive to the Bidding Documents and who has offered the lowest evaluated Bid Price**,** provided that such bidder has been determined to be eligible in accordance with the provisions of Clause IB.3 and qualify pursuant to Sub-Clause IB 28.2.

28.2 The Procuring Entity, at any stage of the bid evaluation, having credible reasons for or prima facie evidence of any defect in supplier's or contractor's capacities, may require the suppliers or contractors to provide information concerning their professional, technical, financial, legal or managerial competence whether already pre-qualified or not:

Provided that such qualification shall only be laid down after recording reasons therefore in writing. They shall form part of the records of that bid evaluation report.

IB.29 Procuring Entity's Right to Accept any Bid and to Reject any or all Bids

29.1 Notwithstanding Clause IB.28, the Procuring Entity reserves the right to accept or reject any Bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidders or any obligation except that the grounds for rejection of all bids shall upon request be communicated to any bidder who submitted a bid, without justification of grounds. Rejection of all bids shall be notified to all bidders promptly.

IB.30 Notification of Award

30.1 Prior to expiration of the period of bid validity prescribed by the Procuring Entity, the Procuring Entity will upload the Contractor All LOI, LOAs, Contract Agreements on EPAD as well and procuring entity will notify the successful bidder in written that his Bid has been accepted. This letter of acceptance shall name the sum which the Procuring Entity will pay the Contractor in consideration of the execution and completion of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called the "Contract Price").

30.2 No Negotiation with the bidder having evaluated as lowest responsive or any other bidder shall be permitted, however, Procuring Entity may have clarification meetings to get clarify any item in the bid evaluation report.

30.3 The notification of award and its acceptance by the bidder will constitute the formation of the Contract, binding the Procuring Entity and the bidder till signing of the formal Contract Agreement.

30.4 Upon furnishing by the successful bidder of a Performance Security, the Procuring Entity will promptly notify the other bidders that their Bids have been unsuccessful and return their bid securities.

IB.31 Performance Security

31.1 The successful bidder shall furnish to the Procuring Entity a Performance Security in the form and the amount stipulated in the Bidding Data and the Conditions of Contract plus additional security for unbalanced bids in accordance with Clause IB.27.4 within a period of 07 days after the receipt of Letter of Acceptance. The Performance Security shall be of an amount equal to Ten percent (10%) of the Contract Price in the currency (i.e.) of the Contract at the option of the bidder, in the form of Pay order/ Demand Draft / Bank Guarantee from any Scheduled Bank in Pakistan excluding micro finance.

31.2 Failure of the successful bidder to comply with the requirements of Sub-Clause IB.31.1 or Clauses IB.32 or IB.34 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security.

IB.32 Signing of Contract Agreement

32.1 The successful bidder shall receive an invitation in form of Letter of Acceptance/work order from office of Chief Engineer Real Estate Division, SLIC, Building No. 09, Dr. Ziauddin Ahmed Road, Karachi, with the aim to sign a Contract Agreement for Required Works as defined in bidding documents through EPAD.

The successful bidder shall, within Seven days (07) days of receipt of Letter of Acceptance/work order will sign the agreement.

In the event of a withdrawal by a successful bidder, Office of Chief Engineer Real Estate Division may invite the next successful bidder to conclude a Contract Agreement for the Works.

If a successful bidder which was invited by Office of Chief Engineer, Real Estate Division, to sign Contract Agreement withdraws from the Bidding Process, the Bid Security of the said successful bidder shall be forfeited by Chief Engineer, Real Estate Division, SLIC.

32.2 The formal Agreement between the Procuring Entity and the successful bidder shall be executed within 7 days of the receipt of the Contract Agreement by the successful bidder from the Procuring Entity.

IB.33 General Performance of the Bidders

The Procuring Entity reserves the right to obtain information regarding performance of the bidders on their previously awarded contracts/works. The Procuring Entity may in case of consistent poor performance of any Bidder as reported by the Procuring

Entities of the previously awarded contracts, inter alia, reject his bid and/or refer the case to the Pakistan Engineering Council (PEC) and PPRA. Upon such reference, PEC / PPRA in accordance with its rules, procedures and relevant laws of the land take such action as may be deemed appropriate under the circumstances of the case including black listing of such Bidder and debarring him from participation in future bidding for similar works.

IB.34 Integrity Pact

The Bidder shall sign and stamp the Integrity Pact provided at Appendix-L to Bid in the Bidding Documents for all procurement contracts exceeding Rupees ten million and uploaded on EPAD. Failure to provide such Integrity Pact shall make the bidder non- responsive.

IB.35 Instructions not Part of Contract

Bids shall be prepared and submitted in accordance with these Instructions which are provided to assist bidders in preparing their bids, and do not constitute part of the Bid or the Contract Documents.

IB.36 Services at Site

It shall be the sole responsibility of the Contractor to provide, operate and maintain in working condition all temporary utilities and services such as water supply, Electricity, Telephone connections, sewerage disposal etc. Required for the proper execution of works under this Contract the Contractor shall also be responsible for payment of the installations as well as consumption charges, directly to the concerned agencies or any other charges or royalties levied by the concerned authority or local governing agency or any other municipal body. Bidder's attention is specially directed to SP-2 of Special Provisions attached to these Bid Document where by the successful bidder is required to make all the necessary arrangements for a temporary electricity service, at site during the whole of Firefighting / hydrant system period and shall furnish an Electric Power Generating set at site and maintain the generating set-in perfect working condition throughout the duration of Contract.

IB.37 Contractor's Camp/Temporary Areas and Offices/Site Office for Engineer

The Contractor shall make on his own, arrangements for his own camp, workshop, yards, storage areas, offices etc.

BIDDING DATA

BD-1

NOTES ON BIDDING DATA

This Section is intended to assist the Procuring Entity in providing the specific information in relation to corresponding clauses in Instructions to Bidders (ITB) and should be prepared to suit each individual contract.

The Procuring Entity should provide in the Bidding Data information and requirements specific to the circumstances of the Procuring Entity, the processing of the Bid, the applicable rules regarding Bid Price and currency, and the Bid evaluation criteria that will apply to the Bids. In preparing this section, the following aspects should be checked:

(a) Information that specifies and complements the provisions of section; Instruction to Bidders must be incorporated.

(b) Amendments and/or supplements, if any, to the provisions of Instructions to Bidders, necessitated by the circumstances of each individual contract, can be introduced only in this section since Instructions to Bidders will remain unchanged.

BIDDING DATA SHEET

The following specific data for the Works to be bided shall complement, amend or supplement the provisions in the instructions to Bidders. Wherever there is a conflict, the provisions herein shall prevail over those in the instructions to Bidders

Instructions to Bidders	
Clause Reference	
Clause IB.1	**Scope of Bid**
Sub Clause 1.1	**Name and address of the Procuring Entity:** The Employer **State Life Insurance Corporation of Pakistan**
	The Employer Representative is: **Chief Engineer – Real Estate Division**
	Name of the Project & Summary of the Works: **Fire Fighting /Hydrant System in State Life Insurance Corporation of Pakistan Building No.9, Dr, Ziauddin Ahmed Road, Karachi.**
Clause IB.2	**Source of Funds**
Sub Clause 2.1	**Name of the Borrower/Source of Financing/Funding Agency:** **State Life Insurance Corporation of Pakistan**
Clause IB.7	**Contents of Bidding Documents**
Sub-Clause 7.1	The Bidding Documents are those stated below, and should be read in conjunction with any Addenda issued in accordance with the Clause IB.9.
Technical Bid	
7.1.1 Volume – I	
	• Instruction to Bidders • Bidding Data • Form of Bid & Appendices to Bid (excluding Appendix-D) • Forms of Performance Security, Contract Agreement, Mobilization Advance Bank Guarantee • Part-I- General Conditions of Contract • Part-II- Particular Conditions of Contract • Specifications – Special Provisions
7.1.2 Volume-II	• Specifications – Technical Provisions

7.1.3 Volume-III	• Bid Drawings
Clause IB.10	**Language of Bid**
Sub-Clause 10.1	All communications and documentations related to this procurement shall be in English.
Clause IB.11	**Documents Accompanying the Bid** **11.1 (A)** The Bidder shall submit with its **Technical Bid** the following documents: **Volume-I** i. Letter of Technical Bid ii. Written power of attorney authorizing the signatory of the Bid iii. Original Bidding Documents (Volume-I) iv. Dully filled in Schedules to Bid v. Qualifications Documents establishing bidder's eligibility vi. Bid Security **Volume-II** i. Specifications – Technical **Volume – III** i. Bid Drawings
	11.1 (B) The Bidder shall submit with its **Financial Bid** the following documents: **Volume – IV** i. Letter of Price Bid ii. Preamble to Bill of Quantities iii. Appendix-D to Bid (Bill of Quantities)
Clause IB.12	**Bid Prices**
Sub-Clause 12.1	Unless stated otherwise in the Bidding Documents, the Contract shall be for the whole of the Works as described in Sub-Clause 1.1 hereof, based on the Priced Bill of Quantities with premium/rebate submitted by the bidder.
Sub-Clause 12.2	The Quantities Set Out in the Bill of Quantities are estimated only. The actual sum to be paid to the Contractor whose tender is accepted will be determined by measuring the work actually done in accordance with the contract.
Sub-Clause 12.3	All duties, taxes, and other levies payable by the Contractor under the Contract, as of the Base Date (defined 28 days prior to the latest date for submission of bids), shall be deemed included in the rates, prices, and the total Bid Price submitted by the Contractor through EPAD. Any additional or reduced duties, taxes, or levies resulting from changes in legislation made after the Base Date shall be reimbursed to, or deducted from, the Contractor, as determined by the Engineer in accordance with

	Sub-Clause 70.2 of the General Conditions of Contract Part-I. No other adjustments for price fluctuations shall apply.
Sub-Clause 12.5	All discounts offered by the bidders should be as per the procedure given in the Bidding Data accompanying the instruction to bidder.
Clause IB. 1.3	**Currencies of Bid and payment.**
Clause IB 14	**Bid validity**
Sub Clause 14.1	**Period of Bid validity:** One Hundred Eighty (180) days In exceptional circumstances, SLIC may solicit the Bidder's consent to an extension of the period of validity reasons shell be recorded in writing. The request and the responses there to shall be made in writing. The Bid Security provided shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid Security. A Bidder granting the request will not be required nor permitted to modify its bid, except as provided in the bidding document.
Clause IB. 15	**Amount of Bid security**
Sub-Clause 15.1	Each Bidder shall furnish, as part of his bid, a bid security Rs. 500,000/-
Clause IB 16.	**Pre-Bid Meeting**
Sub-clause 16.1	**Venue, time, and date of the pre-Bid meeting:**
	Pre-Bid Meeting will be held on before submission date mentioned in Tender advertisement at the office of Chief Engineer – Real Estate Division Prospective Bidder are encouraged to attend the meeting,
Invitation for Bids.	
Class IB 17.	**Format and signing of Bid**
Sub-Clause 17.4	Each bidder shall prepare by filling out the forms completely and without alterations, specified in the Bidding Data, of the documents comprising the bid as described in Clause IB.7
Sub-Clause 17.5	All filled documents shall be signed by a person or persons duly authorized to sign on behalf of the bidder pursuant to Sub- clause 11.1 (a) hereof. All pages of the bid shall be initialed and stamped by person persons signing the bid. All filled and signed stamp documents are submitted through EPAD. No need to submit hard copies of documents.
Clause IB 18	**Sealing and Marking of Bids**

Sub-Clause 18.1	(c) the **Technical Bid** shall comprise of documents listed in Data Sheet IB 11.1(A) along with Bid security and the **Financial Bid** shall comprise of documents listed in Data Sheet IB 11.1(B) which shall be placed in separate envelopes in accordance with
Sub-Clause 18.2	(a) Bidder should submit the Bid through EPAD. **(b) Name & identification number of the contract is as follows:** "Fire Fighting /Hydrant System in State Life Insurance Corporation of Pakistan Building No. 9, Dr. Ziauddin Road, Karachi." **Identification Number: TENDER NO. RED-KHI-FFS-SLB09/1**
Clause IB 19	**Deadline for submission of Bids**
Sub Clause 19.1(a)	Bids should be submitted via EPAD on or before Last Date 18-02-2026.
Clause-IB 22.	**Bid Opening**
Sub-Clause 22.1	**Venue, time, and date of Bid opening.**
	Opening of Technical Proposals: Venue: Online (EPAD) / Office of Chief Engineer – Real Estate Division, 5th floor, State Life Building No. 9, Dr. Ziauddin Road, Karachi. Time: 11:30 AM Date: 1 8 - 0 2 - 2 0 2 6 Opening of Financial Proposals: Venue: Online (EPAD) / Office of Chief Engineer – Real Estate Division, 5th floor, State Life Building No. 9, Dr. Ziauddin Road, Karachi. Time: To be announced after Evaluation of Technical Bids. Date: To be announced after Evaluation of Technical Bids.
Clause IB 27	**Evaluation and comparison of Bids**
Sub-Clause 27.4	If the Bid of the successful bidder is seriously unbalanced in relation to the Procuring Entity's estimate of the cost of work to be performed under the Contract, the Procuring Entity may require the bidder to produce detailed price analyses for any or all items of the Bill of Quantities to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Procuring Entity may require that the amount of the Performance Security set forth in Clause IB.31 be increased at the expense of the successful bidder to a level sufficient to protect the Procuring Entity against financial loss in the event of default of the successful bidder under the Contract.

	a. In case the detailed rate analysis submitted with the bids is, in view of the Engineer, not convincing, the Chief Engineer - Head of the Procuring Entity on the recommendation of Engineer may declare such bid as non- responsive without forfeiture of bid securities and record reasons thereof. b. The procuring entity may offer the contract to next lowest bidder after due diligence in the context of financial difference between such bids or may advertise procurement opportunity afresh. (as per PPRA Rules)
Clause IB 31 **Sub-Clause 31.1**	**Performance Security** The successful bidder shall furnish to the Procuring Entity a Performance Security in the form and the amount stipulated in the Bidding Data and the Conditions of Contract within a period of 07 days after the receipt of Letter of Acceptance. The Performance Security shall be of an amount equal to Ten percent (10%) of the Contract Price in the currency of the Contract at the option of the bidder, in the form of Pay Order/ Demand Draft/Bank Guarantee from any Scheduled Bank in Pakistan excluding micro finance.
Clause IB 32 **Sub Clause 32.1**	**Signing of Contract Agreement** The successful bidder shall receive an invitation in form of Letter of Acceptance/work order from Office of Chief Engineer – Real Estate Division, SLIC, to sign a Contract Agreement for Required Works as defined in bidding documents through EPAD. The successful bidder shall, within Seven (07) days of receipt of Letter of Acceptance/work order shall sign the agreement. In the event of a withdrawal by a successful bidder, Chief Engineer – Real Estate Division, SLIC may invite the next successful bidder to conclude a Contract Agreement for the Works. If a successful bidder which was invited by Chief Engineer – Real Estate Division, SLIC to sign Contract Agreement withdraws from the Bidding Process, the Bid Security of the said successful bidder shall be forfeited by Chief Engineer – Real Estate Division, SLIC.
Clause IB.36	**Services at Site**
Sub-Clause 36.1	It shall be the sole responsibility of the Contractor to provide, operate and maintain in working condition all temporary utilities and services such as water supply, Electricity, Telephone connections, sewerage disposal etc. Required for the proper execution of works under this Contract the Contractor shall also be responsible for payment of the installations as well

	as consumption charges, directly to the concerned agencies or any other charges or royalties levied by the concerned authority or local governing agency or any other municipal body. Bidder's attention is specially directed to SP-2 of Special Provisions attached to these Bid Document where by the successful bidder is required to make all the necessary arrangements for a temporary electricity service, at site during the whole of Firefighting / hydrant system period and shall furnish an Electric Power Generating set at site and maintain the generating set-in perfect working condition throughout the duration of Contract.
Clause IB-37	**Contractor's Camp/Temporary Areas and Offices/Site Office for Engineer**
Sub-Clause 37.1	The Contractor shall make on his own, arrangements for his own camp, workshop, yards, storage areas, offices etc.

LETTER OF TECHNICAL BID AND APPENDICES TO BID

LETTER OF TECHNICAL BID

Name of Contract: "Fire Fighting /Hydrant System in State Life Insurance Corporation of Pakistan Building No. 9, Dr. Ziauddin Road Karachi."

To:

Chief Engineer – Real Estate Division

State Life Insurance Corporation of Pakistan

Building No. 9, Dr. Ziauddin Road Karachi.

We, the undersigned, declared that

a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with instructions to Bidders (Clause IB.9);

b) We offer to Execute and complete in conformity with the Bidding Documents the following Works;

Construction of. **"Fire Fighting /Hydrant System in State Life Insurance Corporation of Pakistan Building No. 9, Dr. Ziauddin Road Karachi "**

c) Our Bid consisting of the Technical Bid and the Price Bid shall be valid for the period of one hundred eighty (180) days from the date fixed for the bid submission deadline in accordance with the Bidding Documents and it shall remain binding upon us and may be accepted at any time before the expiration of that period,

d) As security for due performance of the undertakings and obligations of our bid, we submit here with a bid security, in the amount specified in Bidding Data Sheet, which is valid 28 days beyond validity of Bid itself,

e) We are not participating as a Bidder or as a subcontractor, in more than one bid in this bidding process,

f) We agree to permit Employer of its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors. This permission is extended for verification of any information provided in our Technical Bid which comprises all documents enclosed herewith in accordance with Clause IB.11 (A) of the Bidding Data sheet.

Name.....

In Capacity of.....

Signed.....

Duly authorized to sign the Bid for and on behalf of.....

Date.....

Address..... .....

FB-1

FORM OF BID

Bid Reference No. "Fire Fighting /Hydrant System in State Life Insurance Corporation of Pakistan Building No. 9, Dr. Ziauddin Road, Karachi."

To:
Chief Engineer – Real Estate Division
_____
_____

Gentleman,

1. Having examined the Bidding Documents including Instructions to Bidders, Bidding Data, Conditions of Contract, Specifications, Drawings and Bill of Quantities and Addenda Nos ._____for the execution of the above-named Works, we, the undersigned, offer to execute and complete such Works and remedy any defects therein in conformity with the Conditions of Contract. Specifications, Drawings, Bill of Quantities and Addenda for the sum of Pak Rs. (Pak Rupees_____) Or such other sum as may be ascertained in accordance with the said conditions

2. We understand that all the Appendices attached hereto form part of this Bid.

3. As security for due performance of the undertakings and obligations of this Bid, we submit herewith a Bid Security in the amount of Pak Rupees _____ (Pak Rs. _____) drawn in your favor or made payable to you and valid for a period of _____days beginning from the date Bids are opened.

4. We undertake, if our Bid is accepted, to commence the Works and to complete the whole of the Works comprised in the Contract within the time stated in Appendix-A to Bid.

5. We agree to abide by this Bid for the period of _____days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

6. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

7. We do hereby declare that the Bid is made without any collusion, comparison of figures or arrangement with any other bidder for the Works.

FB-2

We understand that you are not bound to accept the lowest or any Bid you may receive.

Dated this _____day of_____20_____

Signature: _____

in the capacity of ____duly authorized to sign Bids for and on behalf of

_____

(Name of Bidder in Block Capitals) (Seal)

Address:_____

_____

Witness: _____

Signature: _____

Name: _____

Address. _____

_____

Occupation_____

Name.....

In Capacity Of.....

Signed.....

Duly authorized to sign the Bid for and on behalf of.....

Date.....

Address.....

BA-1
Appendix-A to Bid

SPECIAL STIPULATIONS
Conditions of Contract

S. No.	Items	IFB / Fidic Clause	Description
1.	Date and time of opening of Tender	IB 23 & IB 24	Submission of Bid on **18-02-2026** @ 11:00 a.m. Opening of Bid on **18-02-2026** @ 11:30 a.m.
2.	Authority to issue Variation in Emergency	51.1 / 51.2	Variations required in emergency shall be determined by the Consultant and subject to Employer's written approval.
3.	Amount of Bid security	IB 15	**Rs. 500,000/-** in the form of Pay Order/Demand Draft/. Bid Security must be in favor of **State Life Insurance Corporation of Pakistan**. Non-compliance shall lead to rejection of bid.
4.	Release of Bid Security	IB 15.3	a. To unsuccessful Bidder after award of work. b. To successful Bidder: upon submission of Performance Security**.**
5.	Forfeiture of Bid Security	IB 15.2	a. If the bid is withdrawn after opening. b. If the bidder does not accept letter of award or refusal to enter in to the contract
6.	Amount of Performance Security	IB 31.1	**10%** of the Total Contract Price, as stated in the Letter of Acceptance, in the form of Pay Order/Demand Draft/Bank Guarantee issued by a Scheduled Bank in Pakistan (excluding microfinance). The format is attached in "Forms". Performance Security shall be released after successful completion of the Contract Period and clearance of all obligations.
7.	Bid / Tender validity period	IB 14.1	**180 days** from date of opening of bid.
8.	Time for Furnishing Program	14.1	Within 14 days from the date of receipt of Letter of Acceptance
9.	Time for Commencement	41.1	Within 14 days from date of receipt of Engineer's Notice to Commence which shall be issued within fourteen (14) days after signing of Contract Agreement.
10.	Time for Completion	43.1	**180 days** from the date of receipt of Engineer's Notice to Commence. (Extension may be granted by the Competent Authority).
11.	Amount of Liquidated Damages	47.1	**0.05%** of the Contract Price per day of delay in completion of Works, subject to a maximum of 10% of the Contract Pric**e** stated in the Letter of Acceptance.
12.	Defects Liability Period	49.1	**(730 days) Twenty Four (24) Months** from effective date of issuance of Completion Certificate.
13.	Percentage of Retention Money & Release of retention money	60.2	**5%** of each Interim Payment Certificate will be retained and released upon successful completion of the Defects Liability Period (DLP), subject to Consultant's recommendation.

S. No.	Items	IFB / Fidic Clause	Description
14.	Limit of Retention Money	60.2	**5%** of the Contract Price stated in the Letter of Acceptance
15.	Minimum amount of Interim Payment Certificates (Running Bills)	60.2	As per milestones mentioned in Appendix-J
16.	Time of Payment from delivery of Engineer's Interim Payment Certificate to the Procuring Entity)	60.10	28 days
17.	Mobilization Advance (Interest Free)	60.11	**5%** of the Contract Price as Mobilization Advance against an unconditional Bank Guarantee issued by a Scheduled Bank in Pakistan. Only Bank Guarantees are acceptable; Insurance Guarantees are not acceptable**.**
18.	Income tax / Sales tax /GST	70.1	As per applicable laws, rules, and notifications of the Government of Sindh and Government of Pakistan (as amended from time to time).
19.	Blacklisting		As per Blacklisting Policy of **State Life Insurance Corporation of Pakistan** and applicable PPRA rules.

Authorized Signature and Official Stamp …….....

Name …….....

Date.....

BB-1
Appendix-B to Bid

FOREIGN CURRENCY REQUIREMENTS

NOT USED

BC-1
Appendix-C to Bid

PRICE ADJUSTMENT UNDER CLAUSE 70 OF CONDITION OF CONTRACT

NOT APPLICABLE

BD-1

Appendix-D to Bid

BILL OF QUANTITIES

A. Preamble

1. The Bill of Quantities shall be read in conjunction with the Conditions of Contract, Specifications and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work executed and measured by the Contractor and verified by the Consultant and valued at the rates and prices entered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Consultant may fix as per the Contract.
3. The rates and prices entered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract include all costs of Contractor's plant, labor, supervision, materials, execution, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract. Furthermore, all duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as on the date 28 days prior to deadline for submission of Bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.
4. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related items of the Works.
5. Provisional sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clause 58.2 of Part I, General Conditions of Contract.
6. **Dismantling, Reuse, and Salvage Credit**

   Where the Contractor is required to dismantle existing fire suppression system components, all reusable items (e.g., pipes, pumps, hydrants, valves, supports) shall be carefully removed, preserved, and stored as instructed by the Engineer. The Contractor shall submit a detailed inventory of salvaged items for verification.

   The salvage value of such dismantled materials shall be reflected as a deductible item in the BOQ, and credited back to the Employer. No dismantled material may be disposed of or reused elsewhere without written approval from the Engineer.

   All restoration works (e.g., plugging of holes, waterproofing, finish repair)

associated with dismantling shall be deemed included in the rates quoted for dismantling items. No separate payment shall be made unless otherwise specified.

Authorized Signature and Official
Stamp……
Name…….....
Date.....

BD-2
Appendix-D to Bid

BILL OF QUANTITIES

B. Work Items (Specimen)

The Bill of Quantities contains the following Bills and Schedule:

(by way of example)

Bill No. 1 - Fire Fighting Works

Bidders shall price the Bill of Quantities in Pakistani Rupees only.

BD-2
Appendix-D to Bid

BILL OF QUANTITIES
Firefighting Works

Sr. #	Description	Unit	Quantity	Rate (PKR)	Amount (PKR)
	FIRE FIGHTING SYSTEM				

BE-1
Appendix-E to Bid

PROPOSED CONSTRUCTION SCHEDULE

Pursuant to Sub-Clause 43.1 of the General Conditions of Contract, the Works shall be completed on or before the date stated in Appendix-A to Bid. The Bidder shall provide as Appendix-E to Bid, the Construction Schedule showing the sequence of work items and the period of time during which he proposes to complete each work item in such a manner that his proposed program for completion of the whole of the Works and parts of the Works may meet Procuring Entity's completion targets in days noted below and counted from the date of receipt of Engineer's Notice to Commence (Attach sheets as required for the specified form of Construction Schedule):

Description	**Time for Completion**
a "Fire Fighting /Hydrant System in State Life Insurance Corporation of Pakistan Building No. 09, Dr. Ziauddin Road Karachi.",	**180 DAYS**

Authorized Signature and Official

Stamp…….....

Name…….....

Date.....

BF-1
Appendix-F to Bid

METHOD OF PERFORMING THE WORK

[The Bidder is required to submit a narrative outlining the method of performing the Work. The narrative should indicate in detail and include but not be limited to:

1. Organization Chart indicating head office and field office personnel involved in management and supervision, engineering, equipment maintenance and purchasing.

2. Mobilization in Pakistan, the type of facilities including personnel accommodation, office accommodation, provision for maintenance and for storage, communications, security and other services to be used.

3. The method of executing the Works, the procedures for installation of equipment and machinery and transportation of equipment and materials to the site and providing all services including but not limited to supply of power, water, maintenance of facilities, safety and security and all which is required for completion of works in accordance with the contract.
4. Quality Control/ Quality Assurance measures to be adopted including procedures to be followed for carrying out all tests required under specifications.
5. **The Bidder While preparing his methodology for performing and executing the works shall also consider the following:**

a) The timely completion of the project as per time provided in Appendix-A to this Bid.
b) The Contractor while filling out the list of major equipment required at site, shall ensure that the equipment requirement is in consonance with the Construction Requirement.
c) The Contractor is not restricted to carry out work in Single Shift. The Contractor should note that if he plans to execute the work in more than single shift than all costs related to the additional superintendence to be provided by the Engineer will be borne by the contractor. Procedure for such additional costs will be worked out and finalized between the Contractor and Engineer with the Consent of the Employer.
d) The portions of the Site Shall be made available to the Contractor in coordination with other Contractors working at Site. The Contractor Shall prepare the work program accordingly]

Authorized Signature and Official

Stamp…….....

Name…….....

Date.....

BG-1
Appendix-G to Bid

LIST OF MAJOR EQUIPMENT – RELATED ITEMS

[The Bidder will provide on Sheet 2 of this Appendix, a list of all major equipment and related items, under separate heading for items owned, to be purchased or to be arranged on lease by him to carry out the Works. The information shall include make, type, capacity, and anticipated period of utilization for all equipment which shall be in sufficient detail to demonstrate fully that the equipment will meet all requirements of the Specifications.]

Minimum Mandatory Equipment Requirement to be brought/installed/erected at Site prior to release of the 2nd Part of

Sr. No.	Equipment Type and Characteristics	Maximum Marks
1.	Welding Plant (2 nos)	2
2.	Die set for cutting (1 nos)	1
3.	Grinders / Cutters (2 nos)	2
4.	Mechanical Tool Kit (1 nos)	1
5.	Electrical Tool Kit (1 nos)	1
6.	Safety Tool Kit / Set (1 nos)	1
7.	Drill Machines (2 nos)	2
8.	Core Cutting Machine (1 nos)	1
9.	Chain Block 3 ton (1 nos)	1
10.	Pallet jack (1 nos)	1
11.	Generator 5 KVA (1 nos)	2
	Sub-Total:	**15**

Note: The Bidder while preparing his methodology for performance and executing the works and listing out Major Equipment (Required to Complete the Works in the Specified Time Schedule) in this Appendix shall consider the above-mentioned minimum requirement of Firefighting / hydrant system

Authorized Signature and Official Stamp …….....

Name …….....

Date.....

BG-2
Appendix-G to Bid

LIST OF MAJOR EQUIPMENT

Owned or Purchased	Description of Unit (Make, Model, Year)	Capacity HP Rating	Condition	Present Location or Source	Date of Delivery at Site	Period of Work
1	2	3	4	5	6	7
a. Owned						
b. To be Purchased						
c. To be arranged on Lease						

Authorized Signature and Official

Stamp…….....

Name…….....

Date..... .....

BH-1
Appendix-H to Bid

CONSTRUCTION CAMP AND FACILITIES

The Contractor, in accordance with Sub-Clause 4.1(d) of the General Conditions of Contract, shall provide a description of his construction camp's temporary facilities requirements

The Contractor shall be responsible for pumps, electrical power, water and electrical distribution systems, and sewerage system including all fittings, pipes and other items necessary for servicing the Contractor's construction camp.

The Bidder shall list or explain his plans for providing these facilities for the service of the Contract as follows:

1. Site Preparation (clearing for Firefighting / hydrant system, etc.).
2. Provision of Services.
   a) Power (expected power load, etc.).
   b) Water (required amount and system proposed).
   c) Firefighting / hydrant system
3. Firefighting / Hydrant System of Facilities
   a) Contractor's Office. Workshop and Work Areas (areas required and proposed layout, etc.).
   b) Warehouses and Storage Areas (area required, type of construction and layout).
   c) Staff Facilities (Plans for facilities of proposed staff, layout, type of construction, etc.).
4. Firefighting / Hydrant System (detailed plans for carrying out this activity).
5. Other Items Proposed (Security services, etc.).

Authorized Signature and Official Stamp …….....
Name …….....
Date..... .....

BI-1
Appendix-I to Bid

LIST OF SUBCONTRACTORS

I/We intend to subcontract the following parts of the Work to subcontractors. In my/our opinion, the subcontractors named hereunder are reliable and competent to perform that part of the work for which each is listed.

Enclosed are documentation outlining experience of subcontractors, the curriculum vitae and experience of their key personnel who will be assigned to the Contract, equipment to be supplied by them, size, location and type of contracts carried out in the past.

Part of Works	Subcontractor (With Complete Address)
1	2

Authorized Signature and Official Stamp …….....

Name …….....

Date.....

BJ-1
Appendix-J to Bid

ESTIMATED PROGRESS PAYMENTS

INTERIM PAYMENT CERTIFICATE (IPC)

Bidder' estimate of the value of work which would be executed by him as per following criteria.

IPC No.	Description	Payment Detail	Amount (PKR)
IPC-1	Mobilization and supply of equipment to site as per list / BOQ	10% of contract value	
IPC-2	Installation / Execution of Works	25% of contract value	
IPC-3	Testing and Commissioning of the Installed System	40% of contract value	
IPC-4	Final Completion & Approval of Entire System by Client/Engineer	25% of contract value	
	Total	**100%**	

Authorized Signature and Official Stamp …….....

Name …….....

Date.....

BK-1
Appendix-K to Bid

ORGANIZATION CHART FOR THE SUPERVISORY STAFF AND LABOUR

Minimum Mandatory Staff Requirement:

The Contractor Should Arrange the following Staff at Site immediately upon commencement of Work:

Sr. No.	Description	Maximum Points
1.	**Project Manager** B.Sc. Mechanical Engineer with 10 years or above experience of similar nature project & registered with PEC.	15
2.	**Mechanical Engineer** B.Sc. Mechanical Engineer with 5 years or above experience of similar nature project & registered with PEC.	5
3.	**Sub Engineer** DAE Mechanical with 03 years of relevant experience.	2.5
4.	**QA/QC Inspector** DAE Mechanical with 03 years of relevant experience.	2.5
	Sub-Total:	**25**

Authorized Signature and Official Stamp …….....

Name …….....

Date.....

BL-1
Appendix-L to Bid

(INTEGRITY PACT)

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

Contract No._____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 (GoP) or any administrative subdivision or agency thereof or any other entity owned or controlled by 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 rights 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 time 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 Government of Pakistan.

Name of Buyer: ……
Signature: ……
……
[Seal]

Name of Seller/Supplier: ……
Signature:

[Seal]

BN-1
Appendix-M-1 to Bid

QUALIFICATION CRITERIA

Qualification of bidders shall be evaluated on the basis of mentioned criteria. Bidders must secure at least 30% score in each category regarding the work experience, personnel capabilities, equipment capabilities and financial soundness with overall passing marks of 50%, in addition to fulfilment of mandatory requirements.

The Employer reserves the right to waive minor deviations, if they do not materially affect the capability of the bidder to perform the Contract.

Eligible Bidder/Mandatory Criteria

1. Applicant must be registered as a Sole Proprietorship, AOP/Partnership Firm, or a Company duly incorporated with SECP (where applicable).

2. The firm/contractor must be registered with Pakistan Engineering Council (PEC) in Category **C-6 or above**, having relevant specialization codes **ME-02 (Mechanical Works) and CE-10 (Building Works – Firefighting/Water Supply)** with valid license for the year of bidding.

3. Applicant must be registered with FBR for Income Tax and must appear on the Active Taxpayer List (ATL) of FBR.

4. A valid **Affidavit** in original, issued in the current month in the name of the Client, duly attested by Oath Commissioner on Stamp Paper of Rs. 100/-, declaring that the firm has **not been blacklisted or debarred** by any Government / Semi-Government / Autonomous / International Organization, and is **not involved in any litigation**.

5. **Integrity Pact** on judicial stamp paper as per PPRA rules.

- **Note:** Bidders must fulfil all the aforementioned criteria. Failure to comply with any requirement shall result in rejection at the mandatory stage, without proceeding to technical evaluation.

6. **Technical Marks Weightage**

Sr. No.	Category	Marks
1.	Experience Record	30
2.	Personnel Capabilities	25
3.	Equipment Capabilities	15
4.	Financial Soundness	30
	Total:	**100**

- **Note:** bidders must obtain at least 30% marks in each category and an overall Minimum of 50% marks, to qualify in the Technical Evaluation.

BN-1

Appendix-M-2 to Bid

The detailed qualification evaluation shall be carried out as per following sub- criteria:

7. Experience Record

Marks for experience shall be awarded on the basis of following qualifications:

Sr. No.	Description	Maximum Points
1.	Experience as a contractor in the execution of three (03) General Works Projects, each with a contract value of PKR 3 Million or above, completed over the last three (03) years.	15
2.	Experience as a contractor in the execution of three (03) Projects of Similar Nature (Fire & Safety systems) in the last three (03) years, each with a contract value of PKR 3 Million or above.	15
	Sub-Total:	**30**

Note:

- The applicants must provide Letter of Award(s)/Work Order(s) and Taking Over(s)/Completion Certificate(s) of Completed Project(s).
- The applicants must provide Letter of Award(s)/Work Order(s) and Performance Certificate(s) of the currently In-Hand Project(s).
- No marks will be given to the projects for which above letters/certificates are not provided.

8. Personnel Capabilities

The applicant must have in his employment suitably qualified personnel with relevant experience. The marks shall be awarded under this category using following criteria.

Sr. No.	Description	Maximum Points
1.	**Project Manager** B.Sc. Mechanical Engineer with 10 years' or above experience of similar nature project & registered with PEC.	15

Sr. No.	Description	Maximum Points
2.	**Mechanical Engineer** B.Sc. Mechanical Engineer with 5 years' or above experience of similar nature project & registered with PEC	5
3.	**Sub Engineer** DAE Mechanical with 03 years of relevant experience.	2.5
4.	**QA/QC Inspector** DAE Mechanical with 03 years of relevant experience	2.5
	Sub-Total:	**25**

Note: Only those candidates will be considered for evaluation whose CVs (duly signed by the applicant), degrees, experience certificates, PEC registration certificates, and appointment/confirmation letters are attached with the profile.

9. Equipment Capabilities

Credit Marks shall be granted on the basis of the following criteria for various kinds of equipment relevant for the Project:

Sr. No.	Equipment Type and Characteristics	Maximum Marks
1.	Welding Plant (3 Nos)	2
2.	Die set for cutting (1 Nos)	1
3.	Grinders / Cutters (1 Nos)	2
4.	Mechanical Tool Kit (1 Nos)	1
5.	Electrical Tool Kit (1 Nos)	1
6.	Safety Tool Kit / Set (1 Nos)	1
7.	Drill Machines (2 Nos)	2
8.	Core Cutting Machine (1 Nos)	1
9.	Chain Block 3 ton (1 Nos)	1
10.	Hydrostatic Test Pump / Pressure Pump (1 Nos)	1
11.	Generator 5 KVA (1 Nos)	2
	Sub-Total:	**15**

Note: Bidders shall submit a valid Affidavit on stamp paper to the effect that the above items are available with the contractor and can be inspected by the committee at any stage.

10. Financial Position

Marks will be awarded on the basis of following:

Sr. No.	Description	Maximum Marks
1.	Average Annual Turnover of PKR **30 million** in last Three (03) years	30
	Sub-Total:	**30**

Note:

a. The Applicant firms shall submit copies of annual accounts/audited reports on Auditor's Letter Head for the last three (03) years duly certified by a Chartered Accountant (where applicable under law), or alternatively provide FBR Income Tax Returns or Bank Statements for the corresponding period, which indicate the financial soundness of the Applicant's financial position.

A bidder having Average Annual Turnover **Rs. 30 million** in the last three years will get full marks and if a bidder having Average Annual Turnover in last three years is less than 30 million than the marks will be given in accordance the formula in Appendix-N "Evaluation Criteria" is given below.

11. Litigation History

The applicant should provide accurate information on any litigation or arbitration resulting from contracts completed or under execution over the last three (03) years. A consistent history/record of litigations against the applicant may result in rejection of the application.

12. Conflict of Interest

The Applicant must not be associated, nor have been associated within the past three years, with the Consultants or any other entity that has prepared the design, specifications and bidding documents for the Project, or was proposed as Engineer for the Contract. Any such association shall be deemed a conflict of interest and may result in disqualification of the Applicant.

13. Additional Clauses

i. Responses must be provided to all questions in the attached Forms. Where necessary, additional sheets may be attached. Failure to provide complete and accurate information may result in disqualification.

ii. Each sheet shall be duly signed by the Applicant or an authorized representative. Such authorization must be supported by a written Power of Attorney attached with the application.

iii. All the documents submitted by the Applicants shall be treated as confidential and will not be returned.

iv. If additional sheets are attached, each page of every Form shall be clearly marked in the top right-hand corner (e.g., Form I – Page 1 of 2, Form I – Page 2 of 2, etc.).

v. The Firms/Contractors shall provide clear documentary evidence that their Manufacturer possesses the required capacity, expertise, and specialized technology for the relevant machinery/equipment to be installed under the Project. Supporting documents may include brochures, technical certifications, and references of similar projects.

Appendix-N To Bid

EVALUATION CRITERIA

The firms will be evaluated on the following criteria:

Sr. No.	Description	Marks Assigned	Explanation for Marks Obtained	Remarks
1	Experience as a contractor in the execution of at least three (03) general works projects with financial outlay of PKR 30 Million completed over the last three (03) years.	15	• Full 15 marks if the contractor has completed at least three (03) projects. • For less than three (03) projects: Marks = 15 × (A / 3), where A = number of projects.	• No marks if certificate of respective project mentioned in **BN-1 Appendix-M-2 to Bid** is not attached. • No marks if each project cost is less than Rs. 30 million.
2	Experience as a contractor in the execution of three (03) projects of similar nature in the last three (03) years. Total cost of each project shall be PKR 30 Million or above.	15	• Full 15 marks if the contractor has completed three (03) similar projects. • For less than three (03) similar projects: Marks = 15 × (A / 3), A = number of projects.	• No marks if certificate of respective project mentioned in **BN-1 Appendix-M-2 to Bid** is not attached. • No marks if each project cost is less than Rs. 30 Million. • No marks if similar project is not with Government/Semi-Government/Autonomous body.
Total Marks Allocated (A1):		**30**		
3	Professional Staff	25	• 15 Marks will be given for Project Manager (Mechanical) with 10 years of experience of similar nature project & registered with PEC. • 5 Marks will be given for Mechanical Engineer with 5 years of experience of similar nature project & registered with PEC. • 2.5 Marks will be given for Sub Engineer (Mechanical) with 3 • years of experience of similar nature	Only those candidates would be considered for whom CVs duly signed by the applicants, Degrees, Experience letters, PEC Registration Certificates, and Appointment Letters are attached in the profile.

Sr. No.	Description	Marks Assigned	Explanation for Marks Obtained	Remarks
			projects. • 2.5 Marks will be given for QA/QC Inspector (Mechanical) with 3 years of experience of similar nature projects.	
Total Marks Allocated (A2):		**25**		
5	Equipment Capabilities		• Full marks will be given for following provisions of equipment/ machines:	• For less than specified, relative marks will be given. • Bidders shall submit a valid Affidavit on stamp paper to the effect that the above items are available with the contractor and can be inspected by the committee at any stage.
a)	Welding Plant (3 Nos)	2		
b)	Die set for cutting (1 Nos)	1		
c)	Grinders / Cutters (1 Nos)	2		
d)	Mechanical Tool Kit (1 Nos)	1		
e)	Electrical Tool Kit (1 Nos)	1		
f)	Safety Tool Kit / Set (1 Nos)	1		
g)	Drill Machines (2 Nos)	2		
h)	Core Cutting Machine (1 Nos)	1		
i)	Chain Block 3 ton (1 Nos)	1		
j)	Hydrostatic Test Pump / Pressure Pump (1 Nos)	1		
k)	Generator 5 KVA (1 Nos)	2		
Total Marks Allocated (A3):		**15**		
Total Technical Marks (A) = (A1+A2+A3):		**70**		

6	Total Annual turnover in last Three (3) years	30	• Maximum 30 Marks will be given in case of limit is **Rs. 30** million or more. • For the average annual turnover less than **Rs. 30** million, use following weightage: 30 x (A/30) A= Average Annual Turnover in last three years in millions.	The Applicant firms shall submit copies of Annual Account/Audited Reports on Auditor's Letter Head for the last three (03) years duly certified by the Chartered Accountant, (where applicable under law), OR alternatively provide FBR Income Tax Returns OR Bank Statements for the corresponding period, which indicate the financial soundness of the Applicant's financial position. • No marks if Audit Reports OR alternatively provide FBR Income Tax Returns OR Bank Statements indicating Annual Turnover are not attached
Total Marks Allocated (B):		**30**		
Total Marks (A +B):		**100**		

FORMS

- **PERFORMANCE SECURITY**
- **CONTRACT AGREEMENT**
- **MOBILIZATION ADVANCE BANK GUARANTEE**

PS-1

FORM OF PERFORMANCE SECURITY
(Bank Guarantee)

Guarantee No. _____

Executed on _____

Expiry date _____

[Letter by the Guarantor to the Procuring Entity]

Name of Guarantor (Bank) with address:_____
(Scheduled Bank in Pakistan)

Name of Principal (Contractor) with address:_____

_____

Penal Sum of Security (express in words and figures)_____

_____

Letter of Acceptance No. _____Dated _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bidding Documents and above said Letter of Acceptance (hereinafter called the Documents) and at the request of the said Principal we, the Guarantor above named, are held and firmly bound unto the (hereinafter called the Procuring Entity) in the penal sum of the amount stated above for the payment of which sum well and truly to be made to the said Procuring Entity, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has the Procuring Entity's above said Letter of Acceptance for (Name of Contract) for the (Name of Project).

NOW THEREFORE, if the Principal (Contractor) shall well and truly perform and fulfill all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Procuring Entity, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfill all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till all requirements of Clause 49, Defects Liability, of Conditions of Contract are fulfilled.

Our total liability under this Guarantee is limited to the sum stated above and it is a condition of any liability attaching to us under this Guarantee that the claim for payment in writing shall be received by us within the validity period of this Guarantee, failing which we shall be discharged of our liability, if any, under this Guarantee.

PS-2

We, _____(the Guarantor), waiving all objections and defenses under the Contract, do hereby irrevocably and independently guarantee to pay to the Procuring Entity without delay upon the Procuring Entity's first written demand without cavil or arguments and without requiring the Procuring Entity to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the Procuring Entity's written declaration that the Principal has refused or failed to perform the obligations under the Contract which payment will be effected by the Guarantor to Procuring Entity's designated Bank & Account Number.

PROVIDED ALSO THAT the Procuring Entity shall be the sole and final judge for deciding whether the principal (Contractor) has duly performed his obligations under the Contract or has defaulted in fulfilling said obligations and the Guarantor shall pay without objection any sum or sums up to the amount stated above upon first written demand from the Procuring Entity forthwith and without any reference to the principal or any other person.

IN WITNESS WHEREOF, the above-bounden Guarantor has executed this Instrument under its seal on the date indicated above, the name and corporate seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Guarantor (Bank)

Witness: 1

Signature:_____ Signature:_____

Name:_____

Title:_____ Name _____

Address:_____ Title _____

Witness: 2

Signature:_____

Name:_____

Title:_____

Address:_____

_____
Corporate Secretary (Seal)

_____
Corporate Guarantor (Seal)

CA-1

FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of_____(month), 20_____between ((Hereafter called the "Procuring Entity" of the One part) and (hereafter called the "Contractor") of the other part.

WHEREAS the Procuring Entity is desirous that certain Works, viz _____should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witnessed as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents after incorporating addenda, if any, except those parts relating to Instructions to Bidders shall be deemed to form and be read and construed as part of this Agreement, viz:
   - (a) The Contract Agreement;
   - (b) The Letter of Acceptance;
   - (c) The completed Form of Bid;
   - (d) Special Stipulations (Appendix-A to Bid);
   - (e) The Particular Conditions of Contract – Part II;
   - (f) The General Conditions – Part I;
   - (g) The priced Bill of Quantities (Appendix-D to Bid);
   - (h) The completed Appendices to Bid (B, C, E to L);
   - (i) The Drawings;
   - (j) The Specifications.
   - (k) _____(any other)
3. In consideration of the payments to be made by the Procuring Entity to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Procuring Entity to execute and complete the Works and remedy defects therein in conformity and in all respects with the provisions of the Contract.
4. The Procuring Entity hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works as per provisions of the Contract, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed on the day, month and year first before written in accordance with their respective laws.

Signature of the Contactor	Signature of Procuring Entity
(Seal)	(Seal)

Signed, Sealed and Delivered in the presence of:

Witness: 1	Witness: 2
(Name, Title and Address)	(Name, Title and Address)

MG-1

FORM OF MOBILIZATION ADVANCE BANK GUARANTEE

Guarantee No._____

Executed on_____

(Letter by the Guarantor to the Employer)

WHEREAS the _____ (hereinafter called the Employer) has entered into a Contract for _____ (Particulars of Contract), with ____ (hereinafter called the Contractor).

AND WHEREAS the Employer has agreed, at the Contractor's request, to advance an amount of Rs. _____ (Rupees _____) to the Contractor as per the provisions of the Contract.

AND WHEREAS the Employer has requested the Contractor to furnish a Bank Guarantee to secure the advance payment for the performance of the Contractor's obligations under the Contract.

AND WHEREAS _____ (Scheduled Bank) (hereinafter called the "Guarantor"), at the request of the Contractor and in consideration of the Employer agreeing to make the above advance, has agreed to furnish this Guarantee.

NOW THEREFORE, the Guarantor hereby unconditionally and irrevocably guarantees that the Contractor shall use the advance solely for the purposes of the above-mentioned Contract, and in the event of any default by the Contractor in fulfilling its obligations for which the advance was made, the Guarantor shall be liable to the Employer for payment not exceeding the amount of the advance**.**

Notice in writing of any default, of which the Employer shall be the sole and final judge, shall be given by the Employer to the Guarantor. Upon such first written demand, the Guarantor shall immediately pay all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall come into force as soon as the advance payment has been credited to the account of the Contractor.

This Guarantee shall expire on _____. However, it shall remain valid until the advance has been fully adjusted. If the advance has not been adjusted by the expiry date, the Guarantor shall automatically extend the Guarantee for such period(s) as the Employer may require. Any renewal requested by the Employer shall be effected without reference to the Contractor, and the Guarantor shall comply. Payment of any charges for renewal may be made by the Employer from amounts due to the Contractor or its securities.

The Employer's claim under this Guarantee shall remain valid even after the expiry date until the Employer receives clearance in writing along with the original Guarantee.

It is understood that the Employer shall return this Guarantee to the Guarantor upon expiry or upon full settlement of all amounts claimed under this Guarantee.

NOTES ON THE CONDITIONS OF CONTRACT

The Conditions of Contract comprise two parts:

(a) Part I – General Conditions of Contract

(b) Part II - Particular Conditions of Contract

Over the years, a number of "model" General Conditions of Contract have evolved. The one used in these Standard Bidding Documents was prepared by the International Federation of Consulting Engineers (Fédération Internationale des Ingénieurs - Conseils, or FIDIC), and is commonly known as the FIDIC Conditions of Contract. (The used version is the fourth edition, 1987, reprinted in 1992 with further amendments).

The FIDIC Conditions of Contract have been prepared for an ad measurement (unit price or unit rate) type of contract, and cannot be used without major modifications for other types of contract, such as lump sum, turnkey, or target cost contracts.

The standard text of the General Conditions of Contract chosen must be retained intact to facilitate its reading and interpretation by bidders and its review by the Client. Any amendments and additions to the General Conditions, specific to the contract in hand, should be introduced in the Particular Conditions of Contract.

The use of standard conditions of contract for all Firefighting / hydrant system Works will ensure comprehensiveness of coverage, better balance of rights or obligations between Procuring Entity and Contractor, general acceptability of its provisions, and savings in time and cost for bid preparation and review, leading to more economic prices.

The FIDIC Conditions of Contract are copyrighted and may not be copied, faxed, or reproduced. Without taking any responsibility of its being accurate, Pakistan Engineering Council with prior consent of FIDIC Secretariat, has reproduced herein the FIDIC General Conditions of Contract for reference purpose only which cannot be used by the users for preparing their bidding documents. The bidding document may include a purchased copy, the cost of which can be retrieved as part of the selling price of the bidding document. Alternatively, the FIDIC Conditions of Contract can be referred to in the bidding documents, and the bidders are advised to obtain copies directly from FIDIC.*

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* Add the following text if the bidding documents, as issued, do not include a copy: "Copies of the FIDIC Conditions of Contract can be obtained from:
FIDIC Secretariat
P.O. Box 86
1000 Lausanne 12 Switzerland
e-mail: fidic.pub@fidic.org – FIDIC.org/bookshop]

FEDERATION INTERNATIONAL DES INGENIEURS- CONSEILS

CONDITIONS OF CONTRACT

FOR WORKS OF FIRE FIGHTING / HYDRANT SYSTEM ENGINEERING

PART I GENERAL CONDITIONS

WITH FORMS OF TENDER AND AGREEMENT

FOURTH EDITION 1987
Reprinted 1988 with editorial amendments Reprinted in 1992 with further amendments

Copies of the FIDIC Conditions of Contract 4th Edition, 1987 reprinted in 1992 with further amendments can be obtained from:

FIDIC SECRETARIAT

P.O BOX NO. 86

1000 Lausanne 12

Switzerland e-mail fidic.pub@fidic.org-FIDIC org/bookshop (69)

PART II - PARTICULAR CONDITIONS OF CONTRACT

(Mandatory Provisions not to be Amended / Substituted except as instructed by PPRA)

1.1 Definitions

(a) (i) The Procuring Entity is State Life Insurance Corporation of Pakistan the legal successors and any assignee of such person.

(a) (iv) The Engineer is .... nominated as Engineer along with his full address), or any other competent person appointed by the Procuring Entity, and notified to the Contractor, to act in replacement of the Engineer. Provided always that except in cases of professional misconduct, the outgoing Engineers is to formulate his certifications/ recommendations in relation to all outstanding matters, disputes and claims relating to the execution of the Works during his tenure.

The following paragraph is added:

(a)(vi) **"Employer's Representative" is:**

CHIEF ENGINEER – REAL ESTATE DIVISION

or any other competent person appointed in writing by the Employer and shall take effect on delivery of such appointment to the Engineer and the Contractor. The Employer may from time-to-time delegate to the Employer's Representative any of the duties and authorities vested in the Employer and may at any time revoke such delegation.

Any communication given by the Employer's Representative to the Engineer and the Contractor in accordance with such delegation shall have the same effect as though it had been given by the Employer.

(a)(vi) "Bidder or Tenderer" means any person or persons, company, corporation, firm submitting a Bid or Tender.

(b)(v) The following is added at the end of the paragraph:

The word "Tender" is synonymous with "Bid" and the word "Tender Documents" with "Bidding Documents".

The following paragraph is added:

(b)(ix) "Program" means the program to be submitted by the Contractor in accordance with Sub-Clause 14.1 and any approved revisions thereto.

(e)(i) The text is deleted and substituted with the following:

"Contract Price" means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution and completion of the Works subject to such additions thereto or deductions therefrom as may be made and remedying of any defects therein in accordance with the provisions of the Contract.

2.1 Engineer's Duties and Authority

With reference to Sub-Clause 2.1(b), the following provisions shall also apply;

The Engineer shall obtain the specific approval of the Procuring Entity before carrying out his duties in accordance with the following Clauses:

(i) Consenting to the sub-letting of any part of the Works under

(ii) Certifying additional cost determined under Sub-Clause 12.2 “Not Foreseeable Physical Obstructions or Conditions”.

(iii) Any action under Clause 10 “Performance Security” and Clauses 20,22,23 & 24 “Insurance” of sorts.

(iv) Any action under Clause 40 “Suspension”.

(v) Any action under Clause 44 “Extension of Time for Completion”.

(vi) Any action under Clause 47 “Liquidated Damages for Delay” or Payment of Bonus for Early Completion of Works (PCC Sub-Clause 47.3).

(vii) Issuance of “Taking Over Certificate” under Clause 48.

(viii) Issuing a Variation Order under Clause 51, except:

a) in an emergency* situation, as stated here below, or

b) if such variation would increase the Contract Price by less than the amount stated in the Appendix-A to Bid.

(ix) Fixing rates or prices under Clause 52.

(x) Extra payment as a result of Contractor’s claims under Clause 53.

(xi) Release of Retention Money to the Contractor under Sub-Clause 60.3 “Payment of Retention Money”.

(xii) Issuance of “Final Payment Certificate” under Sub-Clause 60.8.

(xiii) Issuance of “Defect Liability Certificate” under Sub-Clause 62.1.

(xiv) Any change in the ratios of Contract currency proportions and payments thereof under Clause 72 “Currency and Rate of Exchange”.

(Note: Procuring Entity may further vary according to need of the project)

* (If in the opinion of the Engineer an emergency occurs affecting the safety of life or of the Works or of adjoining property, the Engineer may, without relieving the Contractor of any of his duties and responsibilities under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 52 and shall notify the Contractor accordingly, with a copy to the Procuring Entity.)

2.2 Engineer's Representative

The following paragraph is added:

The Procuring Entity shall ensure that the Engineer's Representative is a professional engineer as defined in the Pakistan Engineering Council Act 1975 (V of 1976)

The following Sub-Clauses 2.7 and 2.8 are added:

2.7 Engineer Not Liable

Approval, reviews and inspection by the Engineer of any part of the Works does not relieve the Contractor from his sole responsibility and liability for the supply of materials, plant and equipment for construction of the Works and their parts in accordance with the Contract and neither the Engineer's authority to act nor any decision made by him in good faith as provided for under the Contract whether to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any of their representatives or employees or any other person performing any portion of the Works.

2.8 Replacement of the Engineer

"If the Procuring Entity intends to replace the Engineer, the Procuring Entity shall, not less than 14 days before the intended date of replacement, give notice to the Contractor, of the name, address and relevant experience of the intended replacement Engineer. The Procuring Entity shall not replace the Engineer with a person against whom the Contractor raises reasonable objection by notice to the Procuring Entity, with supporting particulars."

5.1 Language(s) and Law

(a) The Contract Documents, shall be drawn up in the English language.

(b) The Contract shall be subject to the Laws of Islamic Republic of Pakistan.

5.2 Priority of Contract Documents

The documents listed at (1) to (6) of the Sub-Clause are deleted and substituted with the following:

(1) The Contract Agreement (if completed);

(2) The Letter of Acceptance;

(3) The completed Form of Bid;

(4) Special Stipulations (Appendix-A to Bid);

(5) The Particular Conditions of Contract – Part II;

(6) The General Conditions – Part I;

(7) The priced Bill of Quantities (Appendix-D to Bid);

(8) The completed Appendices to Bid (B, C, E to L);

(9) The Drawings;

(10) The Specifications; and

(11) _____(any other).

In case of discrepancies between drawings, those of larger scale shall govern unless they are superseded by a drawing of later date regardless of scale. All Drawings and Specifications shall be interpreted in conformity with the Contract and these Conditions. Addendum, if any, shall be deemed to have been incorporated at the appropriate places in the documents forming the Contract.

The following Sub-Clauses 6.6 and 6.7 are added:

6.6 Shop Drawings

The Contractor shall submit to the Engineer for review 3 copies of all shop and erection drawings applicable to this Contract as per provision of relevant Sub-Clause of the Contract.

Review and approval by the Engineer shall not be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory and that the Engineer's review or approval shall not relieve the Contractor of any of his responsibilities under the Contract.

6.7 As-Built Drawings

At the completion of the Works under the Contract, the Contractor shall furnish to the Engineer 6 copies and one reproducible of all drawings amended to conform with the Works as built. The price of such Drawings shall be deemed to be included in the Contract Price.

10.1 Performance Security

The Contractor shall provide Performance Security to the Procuring Entity in the prescribed form. The said Security shall be furnished or caused to be furnished by the Contractor within 28 days after the receipt of the Letter of Acceptance. The Performance Security shall be of an amount equal to percentage of the Contract Price stated in the Letter of Acceptance. Such Security shall, at the option of the bidder, be in the form of either (a) bank guarantee from any Scheduled Bank in Pakistan or

(b) bank guarantee from a bank located outside Pakistan duly counter-guaranteed by a Scheduled Bank in Pakistan

(c) or any other form as describe in the PPRA

The cost of complying with requirements of this Sub-Clause shall be borne by the Contractor.

The following Sub-Clause 10.4 is added

10.4 Performance Security Binding on Variations and Changes

The Performance Security shall be binding irrespective of changes in the quantities or variations in the Works or extensions in Time for Completion of the Works which are granted or agreed upon under the provisions of the Contract.

14.1 Program to be Submitted

The Contractor shall, within the time stated in the Appendix A to Bid, after the date of the Letter of Acceptance, which shall be in the form of:

i) a Bar Chart identifying the critical activities.

ii) a CPM identifying the critical path/activities.

(Procuring Entity to select appropriate one)

14.3 Cash Flow Estimate to be Submitted

The detailed Cash Flow Estimate shall be submitted within 21 days from the date of receipt of Letter of Acceptance

The following Sub-Clause 14.5 is added:

14.5 Detailed Program and Monthly Progress Report

a) For purposes of Sub-Clause 14.1, the Contractor shall submit to the Engineer detailed program for the following:

(1) Execution of Works;

(2) Labor Employment;

(3) Local Material Procurement;

(4) Material Imports, if any; and

(5) Other details as required by the Engineer.

(b) During the period of the Contract, the Contractor shall submit to the Engineer not later than the 8th day of the following month, 5 copies each of Monthly Progress Reports covering:

(1) A Firefighting / hydrant system Schedule indicating the monthly progress in percentage;

(2) Description of all work carried out since the last report;

(3) Description of the work planned for the next 56 days sufficiently detailed to enable the Engineer to determine his program of inspection and testing;

(4) Monthly summary of daily job record;

(5) Photographs to illustrate progress ;and

(6) Information about problems and difficulties encountered, if any, and proposals to overcome the same.

(c) During the period of the Contract, the Contractor shall keep a daily record of the work

progress, which shall be made available to the Engineer as and when requested. The daily record shall include particulars of weather conditions, number of men working, deliveries of materials, quantity, location and assignment of Contractor's equipment.

The following Sub-Clauses 15.2 and 15.3 are added:

15.2 Language Ability of Contractor's Representative

The Contractor's authorized representative shall be fluent in the English language. Alternately an interpreter with ability of English language shall be provided by the Contractor on full time basis. The Engineer / Procuring Entity, however, may relax conditions of the language from English to other local languages if deemed appropriate,

15.3 Contractor's Representative

The Contractor's authorized representative and his other professional engineers working at Site shall register themselves with the Pakistan Engineering Council.

The Contractor's authorized representative at Site shall be authorized to exercise adequate administrative and financial powers on behalf of the Contractor so as to achieve completion of the Works as per the Contract.

The following Sub-Clauses 16.3 and 16.4 are added:

16.3 Language Ability of Superintending Staff of Contractor

A reasonable proportion of the Contractor's superintending staff shall have a working knowledge of the English language. If the Contractor's superintending staff are not fluent in English language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer. The Engineer / Procuring Entity, however, may relax conditions of the language from English to other local languages if deemed appropriate,

16.4 Employment of Local Personnel

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labor from sources within Sindh.

The following Sub-Clauses 19.3 and 19.4 are added:

19.3 Safety Precautions

In order to provide for the safety, health and welfare of' persons, and for prevention of damage of any kind, all operations for the purposes of or in connection with the Contract shall be carried out in compliance with the Safety Requirements of the Government of Pakistan and Sindh with such modifications thereto as the Engineer may authorize or direct and the Contractor shall take or cause to be taken such further measures and comply with such further requirements as the Engineer may determine to be reasonably necessary for such purpose.

The Contractor shall make, maintain and submit reports to the Engineer concerning safety,

health and welfare of persons and damage to property, as the Engineer may from time to time prescribe.

19.4 Lighting Work at Night

In the event of work being carried out at night, 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 danger. The approaches to the Site and the Works where the night-work is being carried out shall be sufficiently lighted. All arrangement adopted for such lighting shall be to the satisfaction of the Engineer's Representative.

20.4 Procuring Entity's Risks

The Procuring Entity's risks are:

Delete the text and substitute with the following:

(a) insofar as they directly affect the execution of the Works in Sindh

(i) war and hostilities (whether war be declared or not), invasion, act of foreign enemies,

(ii) rebellion, revolution, insurrection, or military or usurped power, or civil war,

(iii) ionizing radiations, or contamination by radioactivity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radioactive toxic explosive or other hazardous properties of any explosive nuclear assembly or nuclear component thereof,

(iv) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,

(v) riot, commotion or disorder, unless solely restricted to the employees of the Contractor or of his Subcontractors and arising from the conduct of the Works;

(b) loss or damage due to the use or occupation by the Procuring Entity of any Section or part of the Permanent Works, except as may be provided for in the Contract;

(c) loss or damage to the extent that it is due to the design of the Works, other than any part of the design provided by the Contractor or for which the Contractor is responsible; and

(d) any operation of the forces of nature (insofar as it occurs on the Site) which an experienced contractor:

(i) could not have reasonably foreseen, or

(ii) could reasonably have foreseen, but against which he could not reasonably have taken at least one of the following measures:

- prevent loss or damage to physical property from occurring by taking appropriate measures, or
- insure against.

21.4 Exclusions

There shall be no obligation for the insurances in Sub-Clause 21.1 to include loss or damage caused by the risks listed under Sub-Clause 20.4 para (a) (i) to (iv).

The following Sub-Clause 25.5 is added:

25.5 Insurance Company

The Contractor shall be obliged to place all insurances relating to the Contract (including, but not limited to, the insurances referred to in Clauses 21, 23 and 24) with either National Insurance Company of Pakistan or any other insurance company operating in Pakistan and acceptable to the Procuring Entity.

Costs of such insurances shall be borne by the Contractor.

31.3 Co-operation with other Contractors

During the execution of the Works, the Contractor shall co-operate fully with other contractors working for the Procuring Entity at and in the vicinity of the Site and also shall provide adequate precautionary facilities not to make himself a nuisance to local residents and other contractors.

The following Sub-Clauses 34.2 to 34.12 are added:

34.2 Rates of Wages and Conditions of Labor

The Contractor shall pay rates of' wages and observe conditions of labor not less favorable than those established for the trade or industry where the work is carried out. In the absence of any rates of wages or conditions of labor so established, the Contractor shall pay rates of wages and observe conditions of labor which are not less favorable than the general level of wages and conditions observed by other Procuring Entities whose general circumstances in the trade or in industry in which the Contractor is engaged are similar.

34.3 Employment of Persons in the Service of Others

The Contractor shall not recruit his staff and labor from amongst the persons in the services of the Procuring Entity or the Engineer; except with the prior written consent of the Procuring Entity or the Engineer, as the case may be.

34.5 Health and Safety

Due precautions shall be taken by the Contractor, and at his own cost, to ensure the safety of his staff and labor at all times throughout the period of the Contract. The Contractor shall further ensure that suitable arrangements are made for the prevention of epidemics and for all necessary welfare and hygiene requirements.

34.6 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 purpose of dealing with and overcoming the same.

34.7 Supply of Water

The Contractor shall, so far as is reasonably practicable, having regard to local conditions**,** provide on the Site, to the satisfaction of the Engineer or his representative, adequate supply of drinking and other water for the use of his staff and labour.

34.8 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulations or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or suffer any such importation, sale, gift, barter or disposal by his Subcontractors, agents, staff or labour.

34.9 Arms and Ammunition

The Contractor shall not give, or otherwise dispose of to any person or persons, any arms or ammunition of any kind or permit or suffer the same as aforesaid.

34.10 Festivals and Religious Customs

The Contractor shall in all dealings with his staff and labour have due regard to all recognized festivals, days of rest and religious and other customs.

34.11 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst staff and labour and for the preservation of peace and protection of persons and property in the neighborhood of the Works against the same.

34.12 Compliance by Subcontractors

The Contractor shall be responsible for compliance by his Subcontractors of the provisions of this Clause.

35.2 Records of Safety and Health

The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.

35.3 Reporting of Accidents

The Contractor shall report to the Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means.

36.6 Use of Pakistani Materials and Services

The Contractor shall, so far as may be consistent with the Contract, make the maximum use

of materials, supplies, plant and equipment indigenous to, or produced or fabricated in Pakistan, and services available in Pakistan.

41.1 Commencement of Works

The Contractor shall commence the Works on Site within the period named in Appendix-A to Bid from the date of receipt by him from the Engineer of a written Notice to Commence. Thereafter, the Contractor shall proceed with the Works with due expedition and without delay.

48.2 Taking Over of Sections or Parts

For the purposes of para (a) of this Sub-Clause, separate Times for Completion shall be provided in the Appendix-A to Bid "Special Stipulations".

51.2 Instructions for Variations

At the end of the first sentence, after the word "Engineer", the words "in writing" are added.

54.5 Conditions of Hire of Contractor's Equipment

The Contractor shall, upon request by the Engineer at any time in relation to any item of hired Contractor's Equipment, forthwith notify the Engineer in writing the name and address of the Owner of the equipment and shall certify that the agreement for the hire thereof contains a provision in accordance with the requirements set forth above.

60.1 Monthly Statements

In the first line after the word "shall", the following is added:

"on the basis of the joint measurement of work done under Clause 56.1,"

In Para (c) the words "the Appendix to Tender" are deleted and substituted with the words " Sub-Cause 60.11 (a)(6) hereof". (in case Clause 60.11 is applicable)

60.2 Interim Payments/ Running Bills

In the first line, "28" is substituted by "14".

60.11 Financial Assistance to Contractor

Financial assistance shall be made available to the Contractor by the Procuring Entity by adopting any one of the following three Alternatives**:**

(Appropriate alternative only to be retained)

Alternative One: Mobilization Advance

(a) An interest-free Mobilization Advance percentage % (is mentioned in Appendix-A to Bid) of the Contract Price stated in the Letter of Acceptance shall be paid by the Procuring Entity to the Contractor in two equal parts

(b) upon submission by the Contractor of a Mobilization Advance Guarantee/ for the full amount of the Advance in the Specified Form from a Scheduled Bank in Pakistan:

(1) First part within 14 days after signing of the Contract Agreement or date of receipt of Engineer's Notice to Commence, whichever is earlier; and

(2) Second part within 42 days from the date of payment of the first part, subject to the satisfaction of the Engineer as to the state of mobilization of the Contractor.

(b) This Advance shall be recovered in equal installments; first installment at the expiry of third month after the date of payment of first part of Advance and the last installment two months before the date of completion of the Works as per Clause 43 hereof.

Alternative Two: Mobilization/ Demobilization Cost

Mobilization Cost shall be paid to the Contractor as a part of the priced Bill of Quantities. This cost shall not exceed percentage of contract price as stated in Appendix A to Bid and shall be paid to the Contractor as follows:

(i) 80 % of the Mobilization Cost shall be paid for mobilization at Site. This payment shall be in three stages as follows:

Stage I: 20 % of Mobilization Cost upon obtaining and furnishing of Performance Security and insurance policies and construction of camp and facilities as required under the Contract;

Stage II: 30 % of Mobilization Cost upon providing & installing preliminary requirements of Contractor's Equipment, materials and temporary structures for the commencement of Works to the satisfaction of the Engineer and achieving 3 % value of the Works (excluding payment under Stage-I);

Stage III: 30 % of Mobilization Cost upon providing balance Contractor's Equipment to complete full requirement for the entire work and after achievement of progress to the extent of 6 % value of the Works (excluding payments under Stages I and II); and

(ii) 20 % of Mobilization Cost shall be paid for operation and maintenance of the constructed facilities and for demobilization as per schedule of payment to be submitted by the Contractor in accordance with Clause 57.2 and approved by the Engineer.

Alternative Three: Materials Supplied by Procuring Entity

The Procuring Entity shall supply to the Contractor materials, like Pumps, valves, fittings or any other material whichever deemed necessary to complete the project; and the cost thereof shall be recovered from the Contractor through monthly statements on the basis of actual consumption.

The list of materials, quantities and rates to be charged to the Contractor shall be provided

along with Appendix-A to Bid "Special Stipulations".

(Procuring Entity may opt either "Secured Advance on Materials" or "Financial Assistance to Contractor")

63.1 Default of Contractor

Provided further that in addition to the action taken by the Procuring Entity against the Contractor under this Clause, the Procuring Entity may also refer the case of default of the Contractor to Pakistan Engineering Council for punitive action under the Construction and Operation of Engineering Works Bye-Laws 1987, as amended from time to time as well as under the prevailing rules of PPRA.

65.2 Special Risks

The Special Risks are the risks defined under Sub-Clause 20.4 sub paragraphs (a) (i) to (a) (v).

67. 3 Arbitration

In the sixth to eight lines, the words "shall be finally settled ..... appointed under such Rules" are deleted and substituted with the following:

shall be finally settled under the provisions of the Arbitration Act, 1940 as amended or any statutory modification or re-enactment thereof for the time being in force.

The following paragraph is added:

The place of arbitration shall be ....., Pakistan.

68.1 Notice to Contractor

For the purposes of this Sub-Clause, the Contractor shall, immediately after receipt of Letter of Acceptance, intimate in writing to the Procuring Entity and the Engineer by registered post, the address of his principal place of business or any change in such address during the period of the Contract.

Notice to Procuring Entity and Engineer

For the purposes of this Sub-Clause, the respective addresses are:

a) The Procuring Entity :

(to be filled in by the Procuring Entity as appropriate)

_____

_____

b) The Engineer:

(to be filled in by the Procuring Entity as appropriate)

_____

_____

73.1 Payment of Income Tax

The Contractor, Subcontractors and their employees shall be responsible for payment of all their income tax, super tax and other taxes on income arising out of the Contract and the rates and prices stated in the Contract shall be deemed to cover all such taxes.

74.1 Integrity Pact

If the Contractor or any of his Subcontractors, agents or servants is found to have violated or involved in violation of the Integrity Pact signed by the Contractor as Appendix-L to his Bid, then the Procuring Entity shall be entitled to:

(a) recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by the Contractor or any of his Subcontractors, agents or servants;

(b) terminate the Contract; and

(c) recover from the Contractor any loss or damage to the Procuring Entity as a result of such termination or of any other corrupt business practices of the Contractor or any of his Subcontractors, agents or servants.

The termination under Sub-Para (b) of this Sub-Clause shall proceed in the manner prescribed under Sub-Clauses 63.1 to 63.4 and the payment under Sub-Clause 63.3 shall be made after having deducted the amounts due to the Procuring Entity under Sub-Para (a) and (c) of this Sub-Clause.

75.1 Termination of Contract for Procuring Entity's Convenience

The Procuring Entity shall be entitled to terminate the Contract at any time for the Procuring Entity's convenience after giving 56 days prior notice to the Contractor, with a copy to the Engineer. In the event of such termination, the Contractor:

(a) shall proceed as provided in Sub-Clause 65.7 hereof; and

(b) shall be paid by the Procuring Entity as provided in Sub-Clause 65.8 hereof.

76.1 Liability of Contractor

The Contractor or his Subcontractors or assigns shall follow strictly, all relevant

labor laws including the Workmen's Compensation Act and the Procuring Entity shall be fully indemnified for all claims, damages etc. arising out of any dispute between the Contractor, his Subcontractors or assigns and the labor employed by them.

78.1 Details to be Confidential

The Contractor shall treat the details of the Contract as private and confidential, save in so far as may be necessary for the purposes thereof, and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere without the prior consent in writing of the Procuring Entity or the Engineer. If any dispute arises as to the

necessity of any publication or disclosure for the purpose of the Contract, the same shall be referred to the decision of the Engineer whose award shall be final.

SPECIFICATIONS
SPECIAL PROVISIONS

SPECIAL PROVISION

SP-1. Contractor's/Supplier's Office, Facilities Etc.

The Contractor/Supplier shall establish and maintain a functional Site Office (of an appropriate scale considering the rehabilitation nature of works). The Contractor/Supplier shall provide all facilities in connection with the execution, completion of the Works, remedying defects therein, and maintenance of the utility services. The facilities shall not be limited to the Contractor's/Supplier's Site Office, storage areas, temporary water supply, waste water disposal, temporary electricity, internet, voice and data communication, other communication facility, first aid, fire protection and firefighting equipment, etc.

The Contractor/Supplier shall be solely responsible for arranging all utilities and shall setup, maintain, and operate an architectural and engineering facility with adequate technical staff and equipment required for the particular nature of job covered under the Contract to execute installation, up-gradation/rehabilitation, commissioning works and prepare drawings/shop drawings for approval of the Engineer.

The Contractor/Supplier shall arrange storage area, site office, and security space for aforementioned activities.

SP-2. Temporary Services

SP-2.1. Temporary Water Supply

The Contractor/Supplier shall supply in sufficient quantity all necessary portable and other water for installation and testing works at points within a reasonable distance of the work areas. The Contractor/Supplier shall make arrangements and pay charges for water service installation, maintenance, and removal thereof, and pay the costs of water for all trades.

At completion of the work, the temporary water services equipment and piping shall be removed by the Contractor/Supplier at his own expense.

SP-2.2. Temporary Electricity

The Contractor/Supplier shall make all necessary arrangements for a temporary electricity service, pay all expenses in connection with the installation, operation, and removal thereof, and pay the costs of electricity consumed. Alternately, the Contractor/Supplier shall arrange and operate at his own cost an electric power generator set of sufficient capacity at site which will meet all the electricity requirements during various phases of the project.

The Contractor/Supplier must ensure round-the-clock Electricity Supply till approval of taking-over certificate for the firefighting system.

A temporary lighting system shall be furnished, installed, and maintained by the Contractor/Supplier as required to satisfy the minimum requirements for safety and security and to the satisfaction of the Engineer.

SP-2.3. Waste Disposal

The Contractor/Supplier shall make provisions to dispose of any waste material, dismantled

GI pipes, chemicals, fuels, oils, grease, waste and soil waste, without causing pollution. Disposal of dismantled pipes and materials shall be carried out at sites approved by the concerned local authority and the Engineer.

If any waste material is dumped in unauthorized areas, the Contractor/Supplier shall remove the material and restore the area at his own cost.

SP-2.4. Fire Protection

The Contractor/Supplier shall provide and maintain adequate fire protection in the form of fire extinguishers or other effective means ready for instant use, distributed around the project and temporary storage areas during construction/rehabilitation works.

Gasoline and other flammable liquids shall be stored in safety containers approved by Client/the Engineer and storage shall not be within buildings. Torch-cutting and welding operations performed by the Contractor/Supplier shall have the approval of the Client/The Engineer before such work is started and sufficient chemical extinguishers shall be available at the location where such work is in progress.

SP-3. Sign Board

The Contractor/Supplier shall erect and maintain at the Site in a location to be approved by Client / the Engineer one (1) or two (2) Sign Boards (as required by Client) of dimensions approved by Client / the Engineer. The Sign Boards shall be made of metal, mounted on steel posts securely anchored and braced.

The Contractor shall paint on the Sign Boards the name of the Works, and the names of the Client, Engineering Consultant, and the Contractor/Supplier.

SP-4. Health, Safety and Environment (HSE)

All the work shall be performed in accordance with applicable local and national laws, codes, requirements, and regulations including safety, health, and welfare of persons. The Contractor shall comply with relevant sections of all construction regulations enforceable by law.

The Contractor shall employ a full-time safety engineer having OSHA certification (or equivalent approved by the Client) to help accomplish the purposes of this Clause.

The Contractor will maintain and make available a Safety Violation Register to record safety violations as observed/noted by the Engineer during Site Inspection. These violations will be discussed in Progress Review Meetings. The Contractor will take corrective measures as per the HSE plan strictly; nonconformance may lead to withholding of partial payment until compliance is achieved.

Volume-II

TECHNICAL SPECIFICATIONS
(Firefighting System)

TECHNICAL SPECIFICATIONS
(Firefighting System)

SECTION – 0

1. DEFINITIONS & ABBREVIATIONS

- **NFPA** National Fire Protection Association
- **UL/FM** Underwriters Laboratories / Factory Mutual
- **BMS** Building Management System
- **MCC** Motor Control Center
- **QA/QC** Quality Assurance / Quality Control
- **OEM** Original Equipment Manufacturer
- **AHJ** Authority Having Jurisdiction. SLICP
- **QAP** Quality Assurance Plan

SECTION – 1

1. GENERAL REQUIREMENT

The Contractor shall be required to plan and execute the works in a manner such that the project is completed within the time specified in the Contract and in conformity with the provisions contained in the documents of Contract. The Contractor shall furnish a detailed construction program along with a list of plant and equipment with capacities and capabilities for the approval of the Engineer. The Contractor shall also be required to submit a site supervisory/ management chart.

Mentioned herein or indicated on the drawings, of articles, products operations or methods, requires that the Contractor{s) provide each item mentioned or indicated, of quality or subject to qualifications stated, each operation prescribed and provide therefore all labor, products, equipment and services to complete the firefighting system.

Materials construction and installation methods of all piping, fittings and valves shall conform to the current acceptable standards of the authorities having jurisdiction.

Shop Drawings shall give hydraulic reference points to be designated by letter or -number and to correspond to the comparable reference point shown on the hydraulic calculation sheets the contractor shall submit complete hydraulic calculating including graph summary and detailed worksheets.

Type and location of hangers, pipe sizes and locations, valves and all additional information required for approval by the Authorities and Factory Mutual shall be shown on the shop drawings.

Contractor must visit the site and familiarize himself with the site to ensure that the equipment offered by him are of dimensions that they can be carried and planed in position without any difficulty.

1.1 Scope of Work

i. General Description

The scope of work under this contract includes the complete supply, installation, testing, and commissioning of the Fire Fighting System as per the technical specifications, relevant codes (NFPA, BS, and Local Civil Defence), and as illustrated in the approved construction drawings. The Contractor shall provide all necessary labor, materials, tools, equipment, and supervision to complete the work in accordance with the contract requirements.

ii. Related Documents

The Contractor shall refer to and comply with the following documents, which form an integral part of this contract:

- Issued for Construction (IFC) drawings,
- the project's Bill of Quantities (BOQ),
- the approved Fire Safety Report, and
- all applicable codes and standards including but not limited to NFPA (National Fire Protection Association), British Standards (BS), Local Civil Defence Regulations, and statutory authority requirements.

iii. Mechanical and Electrical Installation

The work includes the fabrication, supply, erection, painting, and commissioning of all mechanical and electrical components of the firefighting system. This includes fire pumps (electric and diesel), jockey pump, all associated pipework, valves, fittings, flow switches, pressure switches, gauges, supports, cabling (control and power), fire hose reels, extinguishers, hydrants, and breeching inlets. All equipment must be installed, tested, and commissioned to deliver the required pressure and flow at every design point, in full compliance with the applicable standards.

iv. Documentation and Approvals

The Contractor shall be responsible for the preparation and submission of shop drawings, hydraulic calculations, as-built drawings, wiring diagrams, O&M manuals, spare parts lists, and other required technical documentation. The Contractor must also coordinate and obtain all interim and final approvals, sanctions, and no objection certificates (NOCs) from the Client, Consultant, and relevant authorities including Civil Defence.

v. Electrical Works and BMS Integration

All electrical works related to firefighting components — including control panels, wiring to flow and pressure switches, and alarm signaling devices — shall be executed as per BS 7671 and local regulatory requirements. Integration with the Building Management System (BMS), where applicable, shall also be

provided by the Contractor.

vi. Transportation and Handling

The Contractor shall be responsible for the packing, safe transportation, unloading, storage, and handling of all system components at the site. Items must be protected from damage and weather exposure, and installed using approved methods.

vii. Shutdowns and Temporary Works

Any planned shutdown of existing services shall be avoided where possible. If unavoidable, such shutdowns must be discussed and approved in advance by all stakeholders. Any temporary modifications, demolition, or restoration works necessary to execute the firefighting system installation shall be carried out by the Contractor at no additional cost.

viii. Civil and Enabling Works

All civil works required to support the firefighting system installation shall be executed by the Contractor. This includes foundations, concrete pads, plinths, cable trenches, core-cutting, backfilling, pipe sleeves, and restoration of any disturbed finishes. These activities must be fully considered within the quoted rates and BOQ items.

ix. Design Criteria

The firefighting system design is based on the following criteria:

- Compliance with NFPA 10, 13, 14, 20, 24, 70, and Local Civil Defence Regulations
- Fire hazard classification as per project occupancy and fire risk category
- Minimum operating duration of water supply: 60 minutes
- **Design Flow and Pressure:**
  - Sprinkler System: Minimum 2.5 bar at remote point
  - Hydrant System: Minimum 7 bar at furthest outlet
- **Pump Sizing:**
  - Flow capacity: 150% of rated flow @ 65% rated head minimum
  - Shutoff head not exceeding 140% of rated head
- **Electrical Design:**
  - Power supply based on BS 7671 and IEC standards
  - Fire-rated cables for critical components
  - Panels and motors selected for ambient temperatures up to 46°C
- **Pipe Sizing:**
  - Sized based on hydraulic calculations per NFPA 13/14

- Velocity limits and friction loss minimized
- Pressure Setting for Sequential Pump Operation:
- Jockey Pump: ON at ≤8.5 bar, OFF at ≥9.5 bar
- Electric Pump: ON at ≤7.5 bar, manual OFF
- Diesel Pump: ON at ≤5.5 bar, manual OFF

x. Work by Others

The Contractor shall coordinate all activities with related trades including civil, electrical, architectural, and HVAC contractors. Works such as provision of main electrical feeders to fire pump control panels, embedded items in structural elements, openings in slabs or walls, and coordination for access to shared services shall be clearly identified and managed. Any interface work not explicitly part of this scope but necessary for functionality shall be coordinated and confirmed with The Engineer.

xi. Inclusive Pricing Responsibility

Finally, the Contractor is responsible for including in their price all costs associated with visible and hidden activities, coordination with other trades, and any incidental works necessary to deliver a complete, functional, and approved system. No extra claims shall be entertained for failure to anticipate such requirements.

1.2 Samples

Submit samples of following;

- Each type of Fittings / Supports
- Each type of signs
- Each type of Piping

1.3 Bill Of Quantities (BOQ) Clarification

All materials, equipment, accessories, and works necessary to ensure complete compliance with these specifications, relevant codes, and functional system delivery shall be deemed included in the Contractor's scope of work — regardless of whether they are explicitly itemized in the Bill of Quantities (BoQ). No extra claims shall be entertained for items required for system completeness, functionality, safety, or code compliance but omitted from the BoQ due to oversight or abbreviation.

1.4 Dismantling Of Existing Fire Suppression System And Salvage Credit

1.4.1 Scope

This section defines the requirements for dismantling existing fire suppression system components, including piping, pumps, valves, fittings, hangers, supports, and related accessories. It also specifies the procedures for salvaging reusable items, restoring affected

areas, and crediting the Employer for dismantled materials.

1.4.2 General Requirements

i. All dismantling works shall be carried out under the supervision of the Engineer/Consultant.

ii. The Contractor shall protect all adjacent services, structures, and finishes during dismantling activities. Any damage caused shall be repaired at the Contractor's cost.

iii. All safety precautions shall be observed during dismantling, including lockout/tag out of electrical connections, depressurization of pipelines, and controlled removal of heavy components.

1.4.3 Salvage And Credit Policy

i. All dismantled materials that are in reusable condition, including but not limited to:

- Mild Steel (MS) pipes
- Fire Hose Cabinets (FHCs)
- Fire hydrants
- Valves, flanges, couplings
- Supports, brackets, and anchors
- Diesel or electric pumps

shall be carefully removed, catalogued, and stored as directed by the Engineer.

ii. The Contractor shall prepare a salvage inventory with estimated quantities and condition assessments. This inventory shall be submitted for review and approval before disposal or relocation.

iii. The salvage value of reusable components shall be reflected as a credit item in the Bill of Quantities (BOQ). The value shall be deducted from the total contract price.

iv No dismantled material may be disposed of, reused, or sold without written approval from the Engineer/Client.

1.4.4 Dismantling Works

i. Dismantling of old lines, supports, and fire suppression components shall only commence after installation, testing, and provisional acceptance of the new system, unless otherwise approved.

ii. All holes in concrete slabs, walls, or ceilings resulting from dismantling shall be:

- Properly plugged and sealed using approved water-tight repair materials.
- Restored to match original finishes where applicable (plaster, paint, tile, etc.).
- Verified to be leak-proof and structurally sound

iii. If existing pipes pass through fire-rated barriers, fire-stopping shall be reinstated using UL-listed assemblies as per fire code.

1.4.5 Measurement And Payment

i. Dismantling works shall be measured as a lump sum or per item as defined in the BOQ.

ii. The salvage value shall be listed as a negative line item in the BOQ, under the heading:

"Credit for Dismantled Materials (To be Deducted from Contractor's Payment)"

iii. No separate payment shall be made for site cleaning, shifting, stacking, or temporary storage of salvaged items.

1.4.6 Documentation

i. The Contractor shall submit the following:

- Pre-dismantling photographic record
- Salvage inventory with item condition
- Location plan for reusable item storage
- Post-restoration photographic record
- Joint inspection report (Engineer + Contractor)

SECTION – 2

This section covers factory and field testing of fire pumps and mechanical components.

SYSTEM DESIGN CRITERIA & COMPONENTS

The Contractor shall be responsible for the complete fabrication, supply, installation, testing, and commissioning of the fire protection systems in accordance with the requirements of NFPA, BS, ISO standards, and local authority guidelines. This includes all associated mechanical, electrical, and civil works necessary to deliver a complete, compliant, and functional system ready for operation.

All systems, whether internal or external to the building, shall include all required pipes, valves, fittings, supports, cabling, accessories, and terminations as shown in the Issued for Construction (IFC) drawings. The installation shall account for coordination with other building services such as HVAC ducts, structural members, and architectural elements. All spatial constraints and service interferences shall be resolved through coordinated shop drawings approved by the Consultant.

2.1 Fire Pumps

The Contractor shall supply and install a complete, pre-assembled fire pump set comprising one electric motor-driven fire pump, one diesel engine-driven fire pump, and one jockey pump, all mounted on a common steel skid. The skid shall also incorporate the necessary control panels (manual and automatic), control wiring, instrumentation, interconnecting piping, valves, and accessories. The entire package shall be hydraulically tested at 150% of its rated operating pressure at the factory prior to delivery. All structural steel components shall be sandblasted, epoxy-primed,

and coated with two layers of fire red finish paint to ensure durability and corrosion resistance.

The fire pump assembly shall be fully compatible with the Building Management System (BMS). The Contractor shall provide and install a BACnet-compliant interfacing card and software required for programming and seamless integration with the BMS.

All fire pumps shall be selected to meet the required flow and head specified in the BOQ and system design. Each pump must deliver at least 150% of its rated capacity at no less than 65% of the rated head. The shutoff head shall not exceed 140% of the rated head. Certified factory performance curves indicating flow, head, and brake horsepower must be submitted for each pump. All pumps and control panels shall be UL Listed and FM Approved and shall conform to the requirements of NFPA 20.

A. Pump Operation Logic

- Jockey pump starts at ≤8.5 bar and stops at ≥9.5 bar
- Electric pump starts at ≤7.5 bar (manual stop only)
- Diesel pump starts at ≤5.5 bar (manual stop only)

B. Jockey Pump Specification

- Type: Vertically mounted centrifugal pump
- Capacity: 65 GPM @ 9.5 bar
- Certification: UL/FM Approved
- Motor: IP55, Class F insulation, 40°C ambient, 80°C temp rise

C. Electric Motor-Driven Pump

- Type: End suction, horizontal centrifugal
- Capacity: 500 GPM @ 9 bar
- Certification: UL/FM Approved
- Motor: IP55, Class F, mounted on vibration-isolated base

D. Diesel Engine-Driven Pump

- Type: End suction, horizontal centrifugal
- Capacity: 500 GPM @ 9 bar
- Engine: Four-stroke, water-cooled, governor-regulated within ±10% RPM
- Accessories: Base frame, battery, fuel tank, air filter, silencer, control panel

E. UL/FM Alternative Electric Pump Configuration

- Type: Horizontal split-case or multistage centrifugal pump
- Casing: Cast iron, 241 MPa tensile strength, hydrotested

- Shaft: SS-316; Impeller: Bronze, dynamically balanced
- Motor: Squirrel cage induction, Class F insulation, selected for 46°C ambient
- Accessories: Coupling guard, suction/discharge reducers, casing relief, air vent, NFPA 20-compliant flow meter, OS&Y valves, check valves

F. Fire Pump Control Panel

- Across-the-line starter, manual/auto control
- Components: Disconnect switch, time-delay circuit breaker (300% FLC), run timer, ammeter, voltmeter, pressure switch, pilot lights, alarm relay, remote fault signal
- Cabinet: Steel enclosure, 46°C-rated

G. Factory Testing

Each assembled fire pump unit (electric and diesel) shall be fully tested by the manufacturer. Certified test performance curves must be submitted for Consultant approval. Units lacking test documentation may be rejected.

H. Field Acceptance Testing

- Match factory test curves within tolerance
- Confirm no overheating or vibration
- Diesel engine to operate under full load without stress
- Control panel to pass 10 automatic and 10 manual start cycles, each with minimum 5-minute runtime
- Minimum 1-hour cumulative run under supervision

2.2 Execution

A. Examination

Examine areas, equipment foundations, and conditions with installer present for compliance with requirements for installation and other conditions affecting pump performance. Do not proceed with installation until unsatisfactory conditions have been corrected.

Examine the installed firefighting system, verify actual locations of piping and connections prior to testing and commissioning.

2.3 Concrete Equipment Bases

Install concrete equipment bases of dimensions required for fire pumps, and controllers.

2.4 Installation

A. Comply with pump manufacturers written installation and alignment instructions.

B. Install pumps in locations indicated and arrange to provide access for periodic maintenance, including removal of motors impellers, couplings and accessories.

C. Set base mounted pumps on concrete equipment bases as indicated on drawings. Disconnect couplings halves before setting. Do not reconnect couplings until alignment operations have been completed.

D. Support pump base plate on rectangular metal blocks and shims or on metal wedges having small taper, at points near foundation bolts to provide a gap of 19 to 38 mm between pump base and foundation for grouting.

E. Adjust metal supports or wedges until pump and driver shafts are level. Check couplings faces and pump suctions and discharge flanges to verify that they are level.

F. Install valves of types and at locations indicated that are same size as the piping connecting fie pump, bypasses, test headers and other piping systems.

G. Install pressure gages on pump suction and discharge in such a manner to be easily read-able and completely isolated from vibrations.

H. Support pumps and piping separately so that weight of piping system does not rest on pumps.

I. Install piping accessories, hangers and supports, anchors, valves meters and gages, and equipment support as indicated for complete installation.

J. Install flow meter and sensing elements where indicated, install flow measuring system components and make connections according to manufacturer's written installation instructions.

K. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified as factory mounted. Furnish copy of manufacturers wiring diagram for submittal to the Consultant.

L. Verify that electrical wiring is installed according to manufacturer's recommendations and installation requirements. Do not proceed with equipment start up until wiring installation is acceptable.

2.5 Alignment

Align pump and driver shafts after complete unit has been leveled on foundation and after grout has set and foundation bolts have been tightened.

Once the alignment is correct, tighten foundation bolts evenly but not too firmly. Fill base plate completely with non shrink, non metallic grout, with metal blocks and shims or wedges in place. After grout has hardened, fully

tighten foundation bolts. Check alignment and take corrective measures if required.

2.6 Connections

- Connect suction and discharge side of the piping system to the pumps.
- Connect flow ¬measuring and other hydronic system components according to manufacturer's written installation instructions.

2.7 Field Quality Control

- Contractor to ensure services of pump manufacturer representative to supervise field assembly of components, installation of firefighting pump units, including piping and electrical connections and field acceptance tests. Report test results in writing.
- Check all connections for tightness.
- Perform field acceptance tests for the pump unit (pump, driver and controller) and system piping when pump unit installation is complete. Where possible, field correct malfunctioning equipment, then retest to demonstrate compliance. Replace equipment that cannot be satisfactorily corrected or that does not perform as specified and as indicated, then retest to demonstrate compliance. Verify that each pump unit performs as specified and as indicated.

2.8 Testing and Commissioning

This section includes testing and commissioning requirements for fire pumps and related mechanical equipment.

During execution, the Contractor shall ensure that the firefighting system is commissioned to deliver design performance. This includes flushing, hydrostatic testing, functional checks, and trial runs witnessed by the Consultant and Client representatives. All test results shall be documented and submitted for approval.

A. General.

- After completion of the Work, Contractor shall run a test over a sufficient period of time to prove the proper capacity and performance of all apparatus, etc., and the system as a whole.
- The Contractor shall carry out commissioning and testing of all equipment installed.
- Startup Services: Contractors shall provide services of pump manufacturer representative to provide startup service and to demonstrate and train owner's maintenance personnel as specified below:

- Test and adjust controls and safeties. Replace damaged and malfunctioning controls and components. Review data in the Operating and Maintenance Manual.
- Final Checks Before Startup: perform the following preventive maintenance operations and checks before startup wherever applicable :
- Lubricate oil lubricated bearings.
- Remove grease¬ lubricated bearing covers and flush bearings with kerosene and thoroughly clean. Fill with new lubricant according to manufacturer's recommendations.
- Disconnect coupling and check electric motor for proper rotation. Rotation shall match direction of rotation marked on pump casing. Check that the pump is free to rotate by hand. Do not operate the pump if it is bound or if it drags even slightly until cause of trouble is determined and corrected.

B. Starting procedure for pumps (open circuit):

- Prime pump by opening suction valve and closing drains, and prepare pump for operation.
- Open sealing liquid supply valve if pump is so fitted.
- Start motor.
- Open discharge valve slowly.
- Observe leakage from stuffing boxes and adjust sealing liquid valve for proper flow to ensure lubrication of packing. Do not tighten gland immediately, but let packing run in before reducing leakage through stuffing boxes. Check general mechanical operation of pump and motor.

C. Commissioning shall be deemed to include all operations required in order to correctly set the plant to work, adjust and calibrate to design conditions to the complete satisfaction of the Consultant. The above shall include but not limited to testing and balancing of all firefighting systems, including associated plant and equipment, balancing and adjusting to achieve correct flow rates, including setting valves and other regulating devices.

D. Final setting positions for all regulating and controlling devices shall be recorded and such records shall form part of the manual of the operating and maintenance instructions.

E. All systems shall be field tested and run on load, with all automatic controls in operation and all circuits balanced to produce design conditions, in presence and to the satisfaction of the Consultant.

F. In case of unsuccessful test run, the Contractor shall take necessary step for

the rectification and retested to the satisfaction of the Consultant.

G. The Contractor shall also provide at his own cost services of skilled and unskilled staff during the test run of all the systems as required by the Consultant.

H. External Fire Fighting System

Standards and Codes:

All applicable local authority regulations and codes

- NFPA¬14. Standard for the installation of stand pipe and hose systems
- NFPA24. Standard for the installation of External Fire Hydrants
- BSI - British Standard Institute.

1. BS 5041 - Fire Hydrant Systems Equipment.
2. BS 5274 - Specification for Fire Hose Reels

I. The publications listed below form part of this specification to the extent referenced and are referred to in the text by the basic designation only. Reference shall be made to the latest edition of said standards unless otherwise called for.

i) AWWA C502 - Dry-Barrel Fire Hydrants

ii) AWWA C503 - Wet-Barrel Fire Hydrants

iii) AWWA C550 - Protective Epoxy Interior Coatings For Valves and Hydrants

J. UL - Underwriters Laboratory, Inc. USA.

K. FM - Factory Mutual Testing Laboratories, USA

L. FOC - Fire Offices Committee of UK.

M. DIN - Deutches Institute for Normung e. V. West Germany

N. JIS - Japanese Industrial Standards

O. AWS - American Welding Society

P. ASME - American Society of Mechanical Engineers

Q. ISO - International Standards Organization Switzerland

R. AISI - American Iron and Steel Institute

S. American Society for Testing and Materials

T. Design Criteria

U. Fire suppression system shall be selected to meet the required duties stated in the drawings and schedules.

V. The entire Fire Protection System shall be hydraulically analyzed and installed

by a specialist contractor only.

W. Submissions

i) Submit the complete fire protection system data sheets. List piping material types, ASTM number, schedule or pressure class, joint type, manufacturer and model number where appropriate. List valves, specialties and equipment with manufactur-er and model number.

ii) Shop drawings shall indicate water supply location and size, piping layout and size, locations and type, hanger locations and type, equipment locations and type, valve locations and type, occupancy classes, hydraulic calculations reference points, node references of remote area and discharge densities.

iii) Together with Shop Drawings and Product Data, Plans and Specifications shall be submitted in conformance with NFPA. Contractor shall be responsible for obtaining approvals from Civil Defence Authority.

iv) Test Reports shall be submitted in accordance with the approved format giving all required test details.

X. Quality Assurance and Control

i) Any installed material not meeting the specification requirements must be replaced with material that meets these specifications.

ii) Product delivery, storage and handling

iii) Handle equipment and components carefully to prevent damage, breaking, denting and scoring. Do not install damaged components, replace with new.

iv) Store equipment and components in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.

2.9 Hydrant System

Provide and install fire hydrants of Class I type, each having two 65 mm hose outlets and one pumper nozzle. Hydrants shall conform to BS 750 and be of screw-down, streamline pattern. The body shall be high-quality, close-grained grey cast iron, with spindles of manganese bronze (minimum tensile strength 1.63 kg/mm^2). Seating valves and internal components shall be gunmetal with a Brinell hardness number of at least 80.

Hydrants shall close via clockwise rotation and provide 63 mm dia screwed hose connections. Inlet flanges shall match the connecting tees. All hydrants shall be externally coated with three layers of anti-corrosion treatment from an approved

manufacturer.

2.10 External Fire Hydrants

A. Fire hydrant shall be of the UL/FM Certified pillar type with protecting shell and shall as per AWWA C503-88 or equivalent British Standard Manufacturer shall be approved by the Local Civil Defense Authority.

B. Fire hydrants and appurtenances shall be selected from the Approved Materials List

C. Dry-barrel fire hydrants shall comply with AWWA C502 and these specifications unless other-wise indicated on the Approved Drawings

D. Wet-barrel fire hydrants shall comply with AWWA C503 and these specifications unless other-wise indicated on the Approved Drawings

E. Upper barrel shall be of best quality ductile iron. Lower barrel shall be of cast iron. All barrel castings shall be painted inside and outside with 300 micron thick non toxic fusion bonded epoxy. Aluminum shell shall be painted with 60 micron thick polyester paint to color as approved by the local Civil Defence Authority.

F. The interior of ductile-iron hydrants shall be fusion-epoxy lined per AWWA C55

G. All outlets shall be provided with National Standard Fire-Hose Threads. Outlets shall be equipped with brass or ductile iron caps with chain

H. Hydrant rod shall be of steel, zinc electroplated in two part construction held together by a rod connector made of hot dip galvanized ductile iron

I. A cast bronze nut shall directly actuate the hydrant rod. Grease groove shall ensure complete lubrication and long life `O' rings shall seal the lubrication chamber and prevent water entering the operating mechanism.

J. Hydrant shall be with one front outlet size 100mm diameter and two side outlets each 65mm diameter. Outlets shall be provided with quick connect couplings, protective caps held in place by chains. Fire hydrants shall be with enclosed outlets in an aluminium casing as approved by the local Civil Defence Authority and shall be suitable for a maximum working pressure of 16 Bars. Hydrants outlets shall be provided with quick connect couplings to the approval of the Local Civil Defence Authority.

K. Hydrant outlet sizes and configuration shall be as shown on the Approved Plans or as directed by the fire department of jurisdiction.

2.11 Fire Hose Cabinets

A. Fire cabinets shall be Single Compartment MS with 1.2mm thickness as minimum. Fire hose cabinets shall be coated with 70 microns red oxide pain for corrosion protection. Hinges shall be solid, pin type machined from steel rods and welded to cabinet and door. Door edges shall be boxed and shall have recessed handle in stainless steel.

B. The dimensions and details shall be (H=1600 W=800 D=300) as per drawings. Incase required by the consultant and client cabinets shall be given two (2) coats of red oxide primer and finished with two (2) coats of fire red enamel but this shall only to subject to consultants approval.

Design Features

C. Upper compartment specially designed for mounting swinging pipe type hose reels (size - 1" x 30 mtr long).

D. Lower compartment can accommodate the following:

2.5" x 30 mtr. lay flat fire hose + 2 portable extinguishers + 2.5" landing valve + nozzle as detailed in the drawings.

E. Special hose reel mounting bracket with minimal cabinet depth.

F. Swinging pipe type hose reel can be mounted on either side of the cabinet based on the site condition/ riser access.

G. Inlet lock shield control valve, pressure reducing valve are fixed.

H. Cabinet can be with Door Made of Full Stainless Steel sheet Brush Finish.

I. Cabinet painted with Red (RAL 3000) electrostatic powder coating.

(only if requested by the client)

NF/900 S - SS

NF/900 S - MS

2.12 Fire Hose Reels with Cabinet and Valves

Provide stainless steel wall-mounted hose reel cabinets rated for 2-hour fire resistance. Cabinets shall include:

- One hose reel: 100 ft (30.5 m), 25 mm diameter red rubber hose (BS 3169 Type 1, Class B)
- Control nozzle: Nylon lever type, jet/spray
- Lock shield valve: 25 mm, dezincification-resistant material, threaded
- Pressure reducing valve: 1" dia, inlet 20 bar, outlet 1–4 bar

Cabinet design and material shall be subject to The Engineer's approval.

2.13 Portable Fire Extinguishers

A. Fire extinguishers shall be to the approval of the local authorities.

B. Fire extinguishers shall be as indicated on the drawings.

C. The pressure test on the extinguishers shall remain valid for 5 years.

D. All portable extinguishers shall have welded steel / light alloy shells

E. All extinguishers shall be UL Listed and conform to NFPA 10.

Supply, install, and label the following types:

- 6 kg Dry Chemical Powder (DCP) extinguisher, stored pressure type
- 5 kg Carbon Dioxide (CO_2) extinguisher, stored pressure type

Extinguishers shall be mounted at designated locations shown on drawings and approved by the Engineer and Civil Defence.

2.14 Wheeled Fire Extinguishers

A. Carbon Dioxide: Large extinguishers with 30 Kg CO2 cylinder with screw-down valve, high pressure hose with extinguishing shower/snow pipe. All

mounted on trolley with solid rubber tyred disc wheels.

B. Carbon Dioxide: Small extinguishers with 10 Kg CO2 cylinder with screw-down valve, high pressure hose with extinguishing shower/snow pipe. All mounted on trolley with solid rubber tyred disc wheels.

SECTION -3

FIRE PROTECTION PIPING & ACCESSORIES (Internal & External)

This section addresses testing of internal building fire protection components.

3.1 Pipe and Fittings

For working pressures below 2000 kPa;

1. Where working pressure in the piping is below 2000 kPa pipes shall be M.S seamless ASTM A53 grade B, schedule 40.
2. All pipes outside the building shall be laid underground at a depth of 1 meter (approx.) and laying shall be as per layout drawing, excavation, back filling of earth, cutting holes in existing structure where necessary, providing puddle collars/pipes as required & making good the damages including making the concerned portion of the structure water tight. The underground steel pipes shall be protected by coating and wrapping.
3. Erection of over ground piping shall be complete with necessary pipe supports hangers with MS angles/plate/nut bolts/clamps etc. with fabrication as required including providing MS puddle pipes/collars as required for punctures through walls/slabs etc.
4. Erection of pipe lines shall also include chipping of wall; making holes inside RCC or brick walls, slabs and necessary civil works for restoration of the surface after completion of erection.

A. Firefighting pipe work above grade

a) General Pipe and Fitting Requirements

(i) All pipe work and fittings shall conform to the relevant clauses in this specification.

(ii) Where weld fittings or mechanical grooved fittings are used, use only long radius elbows having a centre line radius of 1.5 pipe diameters.

(iii) No elbows will be allowed on fire service systems where all changes of direction shall be by means of standard bend springs or long radius bends.

(iv) Where pipes cross fire rated walls and slabs, beams and waterproof membranes, galvanized steel sleeves shall be used and the penetrations

shall be fireproofed (using flexible materials) to the same rating as the wall. The fire proofing materials shall be applied strictly as per the manufacturer's recommendations.

(v) The Above ground piping shall be UL/FM Seamless Black Steel Pipe: as per ASTM A 53/A 53M, ASTM A 135, or ASTM A 795 Schedule 40 with UL/FM welded fittings.

(vi) Fittings for piping 50mm and below shall be UL/FM threaded mealable iron Class 250 to ANSI B16.4

(vii) Fittings for piping greater than 50mm shall be extra heavy UL/FM welded galvanized fittings class 150 to ANSI B16.9 and shall be able to rated for 300 PSI pressure

b) Internal Fire Protection System (For Buildings Works)

This subsection outlines the design, material specifications, installation methods, and testing requirements for internal fire fighting systems within the building premises. The scope includes wet risers, fire hose cabinets, landing valves, fire hose reels, sprinkler systems (where applicable), fire extinguishers, pipe routing, pipe supports, penetration fire-stopping, and integration with fire alarm systems, in full compliance with NFPA 13, 14, and 20, Civil Defence requirements, and local regulations.

All internal works shall be coordinated with structural, architectural, HVAC, plumbing, and electrical services through coordinated shop drawings submitted for Consultant approval.

i) Materials

- Piping: M.S. Seamless, ASTM A53/A135/A795, Schedule 40
- Fittings: Welded or grooved-end type, UL/FM Approved
- Valves: Gate, butterfly, check, test, drain — UL/FM Approved
- Cabinets: SS 12 SWG with SS mirror/hairline finish doors
- Accessories: Swing-type hose reel (30m), 65mm landing valve, hose rack, spray/jet nozzle
- Hose Reels: 25mm red rubber hose (BS 3169 Type 1), pressure-reducing valve
- Fire Extinguishers: DCP (5kg), CO_2 (6kg), AFFF (10L/25L) — UL/FM Approved

ii) Installation

- Pipes routed in shafts/ceilings, supported as per NFPA 13

- Hangers and brackets UL/FM Approved with 2-hour fire rating
- Penetrations fire-sealed with UL-classified systems
- Hose cabinets and valves located as per IFC drawings

iii) Hydrant and Riser System

- Wet risers in fire-rated shafts
- Landing valves, reels, extinguishers at each floor
- Test riser at 13.8 bar for 2 hours

iv) Sprinklers (if applicable)

- NFPA 13 compliant system design
- UL Listed, 68°C sprinkler heads, flow switch, tamper switch
- Balanced hydraulics and proper drainage slope

v) Testing & Commissioning

- Hydrostatic test: 1.5× operating pressure for 2 hours
- Functional testing of reels, valves, alarms
- Witnessed and certified by Consultant and Civil Defence

vi) Tagging & Painting

- Brass tags per NFPA 13
- Pipes painted Post Office Red with directional arrows
- Primer: 2 coats red oxide, Finish: 2 coats synthetic enamel (fire red)

vii) Documentation

- As-built drawings, test certificates, warranties, O&M manuals prior to handover

B. Firefighting Pipe Work Below Grade For External Fire Protection System

(i) All External Fire Water Supply pipes shall be high density polyethylene pipes (HDPE) and shall comply with the requirements of DIN 8074/8075 or ISO 4427 type PE 100 SDR 11 -(standard dimension ratio) PN-16 and tests are made in accordance with American Standards ASTM D1248/D3035/F714 or Equivalent ISO Standards.

(ii) **Molded PE Fittings:** ASTM D 3350, PE resin, socket- or butt-fusion type, made to match PE pipe dimensions and class.

(iii) The pipes shall be suitable for underground installation for drinking water at a working pressure up to 12 bar at 20°C or 9 bars at 35°C.

(iv) The pipe nominal size and wall thickness shall be to the following dimensions.

Mean Outside Diameter OD (mm)	Minimum Wall Thickness(mm) SD R11, PN-16	Internal Diameter ID(mm) SD R11, PN-16
50	4.6	40.8
75	6.8	61.4
90	8.2	73.6
110	10	90
125	11.4	102.2
160	14.6	130.8
200	18.2	163.6
225	20.5	184
250	22.7	204.6
315	28.6	257.8
355	32.2	290.6
400	36.3	327.4

The minimum required strength (MRS) of the polyethylene pipe shall be 8 MPa at 20°C and 50 years life time. The design stress shall be 6.3 MPa.

The polyethylene pipe shall meet the following specification:

Property	Test Method	Units	PE 100
Density (Compound)	ISO 1183	Kg/m³	959
Melt Flow Rate(190ºC/5kg)	ISO 1133	g/10 min	0.25
Tensile Stress at Yield(50mm/min)	ISO 527-2	MPa	25
Elongation at Break	ISO 527-2	%	> 600
Charpy Impact Strength, notched	ISO 179/1eA	kJ/m²	16
Vicat Softening Point	ASTM D 1525	ºC	122
Brittleness Temperature	ASTM D 746	ºC	< -70
ESCR (10% Igepal), F50	ASTM D 1693A	Hrs.	>10,000
Thermal Conductivity	DIN 52612	W/mºK	0.4
Linear Thermal Expansion	ASTM D 696	K^{-1}	$1.5x10^{-4}$

The pipes shall be manufactured from polyethylene containing only those antioxidants, UV stabilizers and pigments necessary for the manufacturing of the pipes.

Polyethylene pipes shall be black colour. The carbon black content in the compound shall be 2.25 + 0.25 % by mass when measured in accordance with ISO 6964. The dispersion of carbon black when determined in accordance with ISO 11420 shall be equal to or less than grade 3.

The thermal stability of polyethylene material shall meet the requirements of ISO 4427.

If rework material is added or used, it shall be clean, derived from the same resin and reground under the supervision of the same manufacturer and shall be compatible with the material to which it is added.

The material of the polyethylene pipe which is in contact with or likely to come in contact with drinking water shall not constitute a toxic hazard, shall not support microbial growth and shall not give rise to unpleasant test or odour, cloudiness or discoloration of the water.

The concentration of substances, chemical and biological agents leached from materials in contact with drinking water, and measurement of the relevant organoleptic / physical parameters, shall not exceed the maximum values recommended by the World Health Organization in its "Guidelines for Drinking Water Quality" or the EEC Council Directive on the "Quality of Water Intended for Human Consumption", whichever is more stringent in each case.

Polyethylene pipes shall be clearly marked at intervals of one meter indicating the manufacturer name, nominal diameter, standard number, pipe class, pressure rating and date of pipe manufacturing. The word "WATER" shall also be marked every one meter. The marking shall be by means of paint or engraved marks. All markings shall be in blue colour.

The pipes shall kept shaded at all times. The coils shall be wrapped and shall not be exposed to direct sunlight.

3.2 Fire Pipe Support

a) All pipe supports shall be as per NFPA 13 and shall be listed.

b) Contractor to Submit Fire Support calculations indicating the desired pipe load with water as per NFPA-13

i) Horizontal installation:

a) For Pipe size upto 2”Ø = Use UL Listed/ FM

Approved adjustable swivel ring.

b) For Pipe size above 2" Ø = Use UL Listed/ FM Approved clevis hanger

Maximum Spacing between Single Pipe Supports for steel pipes:

Nominal Pipe Size, mm												
15	20	25	32	40	50	65	80	100	125	150	200	250
Maximum Span Meters												
1.5	1.8	2.1	2.1	2.7	3.0	3.4	3.7	4.3	4.9	5.1	5.8	6.1
Minimum Rod Diameter, Millimeters												
6.4	6.4	9.5	9.5	9.5	9.5	13	13	16	16	16	19	24

a) The hanger rods shall be capable of supporting at least twice the Live load of the system. The Minimum rod diameters for various pipe diameters shall be as per NFPA-13

b) Clevis hanger shall be adjustable of yoke and lower U strap with cross bolts. Cross bolts shall have a double locking nut. Vertical support rod shall have a load nut below the yoke. Vertical inserts installed using power activated gun shall not be acceptable. 'C' type beam clamps shall not be acceptable

c) Concrete inserts shall be FM galvanized malleable iron poured in place type, screwed of toggle style

d) Concrete anchors shall be FM Cadmium plated malleable iron or alloy steel expansion shield type.

e) Welded steel brackets for supporting loads up to 390 kd shall be galvanized steel and designed to accept standard hanger rod and pipe supporting devises.

f) Riser clamps shall be galvanized steel bands shaped to tightly fit O.D of pipe, secure with bolts.

g) Provided Seismic Support as per NFPA-13 for pipe size 50mm and greater. Contractor to submit the Seismic design report from manufacturer.

3.3 Flexible Connectors

1. Flexible connectors shall have materials suitable for system fluid. The Pressure rating of the connector shall be same as that of Fire pipe. Coordinate first paragraph and list below with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for

semiproprietary specifications.

2. Stainless-Steel-Hose/Steel Pipe, Flexible Connectors: Corrugated, stainless-steel, inner tubing covered with stainless-steel wire braid. Include steel nipples or flanges, welded to hose.

3.4 Hangers and Supports

1. Piping hangers, supports and sway braces shall be fabricated in accordance with NFPA-13. The hangers, rods supports and supporting devices and accessories shall be capable of supporting at least twice the live loads of the product being supported. All hangers, supports and accessories shall be UL listed and FM approved.
2. Clevis hangers shall be adjustable of yoke and lower U strap design with cross bolt and manufactured from galvanized steel. Cross bolt shall have a double locking nut. Vertical adjustable supporting rod shall have a load nut below the yoke and a locking a nut above the yoke. Vertical inserts installed using power activated gun will not be accepted. 'C' type beam clamps will not be accepted. Saddle clamp shall be installed with rubber lining.
3. Welded steel brackets for supporting loads up to maximum of 390 kg shall be galvanized steel and designed to accept standard hanger rods and NFPA ing devices.
4. Riser clamps shall be galvanized steel bands shaped to tightly fit O.D. of pipe, secured with bolts.
5. All hangers / supports / threaded rods saddle clamps should be 02 hours fire rated.

3.5 Installation of Pipes

1. All pipes shall be adequately supported from ceiling or walls by structural clamps fabricated from M.S. structural e.g. rods, channels, angles and flats. All clamps shall be painted with one coat of primer and two coats of black enamel paint. The contractor shall provide inserts at the time of slab casting or provide suitable anchor fasteners.
2. The pipe supports or hangers shall be designed to withstand combined weight of pipe, pipes fittings, fluid in pipe and insulation. Pipe supports shall be of steel and coated with rust preventing paint and finished with two coats enamel paint. The maximum spacing for pipes supports shall be as below:

Pipe (MM)	Maximum Spacing	Drop Rod Size
Up to 25	2100 mm	8 mm
32	2700 mm	10 mm
38	2700 mm	10 mm
50	3000 mm	10 mm
63	3300 mm	12 mm
75	3600 mm	12 mm
100	4200 mm	16 mm
125	5200 mm	16 mm

3. Pipes supports shall be spaced at maximum interval of 1.5 mtrs. on either side of heavy fittings and valves. Wherever piping passes through walls, pipes sleeves of diameter larger than that of piping shall be provided.

4. Pipe sleeves shall be of steel or cast iron pipe. Install pipe sleeves of ample diameter at all points where pipes penetrate beams, floors or walls. Size and install so that sprinkler pipes are not stressed.

5. The underground piping shall be supported with cement concrete blocks of suitable size and strength provided at an interval of 2.5 mtrs. The pipes shall be laid at 1 mtr. Depth (top of the pipe) and trench excavated for sufficient width. The rate of pipes shall include the scope of excavation / refilling the trench. 1:2:4 concrete thrust blocks are also to be provided at turning of pipe. The cost of installation includes concrete pedestals etc. as required and to be included in the item rate.

➢ **Check all connections for tightness**

Perform field acceptance tests for the pump unit (pump, driver and controller) and system piping when pump unit installation is complete. Where possible, field correct malfunctioning equipment, then retest to demonstrate compliance. Replace equipment that cannot be satisfactorily corrected or that does not perform as specified and as indicated, then retest to demonstrate compliance. Verify that each pump unit performs as specified and as indicated.

3.6 Valves

i) All valves shall be rated for at least 1.5 times the system working pressure.

All isolating valves shall be lock shield type.

ii) All Valves shall be UL listed FM- approved and shall have a minimum test pressure of 16 bars (PN-16)

iii) Except where special features are required or unless otherwise noted all valves shall be of one manufacturer with the manufacturer's name and the pressure rating clearly marked on the outside of the valve body.

3.7 Gate valves:

- **50mm and smaller:** Outside screw and yoke gate valves, bronze body, bronze mounted, screwed bonnet, rising stem, solid wedge
- **65mm and larger:** Outside screw and yoke gate valves, Ductile Iron, rising stem, solid wedge, UL listed as indicated on the drawings.

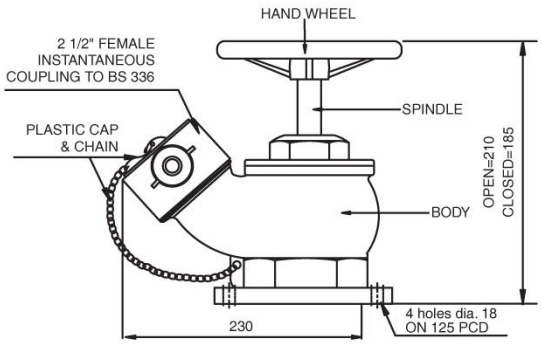
3.8 Check valves:

- **50mm and smaller:** Bronze body, threaded end, renewable bronze disc, suitable for installation in a horizontal or vertical line with flow upward.
- **65mm and larger:** Ductile iron body, flanged or grooved ends, bronze trim, bolted cap, renewable bronze seat and disc, suitable for installation in a horizontal or vertical line with flow upward.

3.9 Landing Valves

Copper Alloy to BS EN 12163: 1998 with Spheroidal Graphite Cast Iron Hand wheel. Hydrant outlets should be of a type acceptable to the public fire brigade and should comprise a valve outlet, screwed or flanged for attachment to the riser and fitted with a 65 mm instantaneous female coupling and a blank cap secured by a suitable length of chain. The whole fitting should be of sound construction and shall be suitable for a working pressure of 27 bar. Valve shall comply with BS 4504.

The hydrant outlet valves used shall be of the type incorporating a device to limit the outlet pressure to a maximum of 6.9 bar.



3.10 Air Vessel and Air Release Valve

Air vessel on top of wet riser piping shall be fabricated of at least 8mm thick steel to withstand the pressure, with dished ends and supporting legs. This shall be of 250mm dia and 1m high. This shall be complete with necessary flange connection to the wet riser piping and air release valve with necessary piping to meet the functional requirement of the system. The air vessel shall be of continuous welded construction and galvanized. This shall be tested for twice the working pressure.

3.11 Pressure Gauges

1. Coordinate first paragraph and list below with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for semiproprietary specifications.
2. Description: UL 393, 3-1/2- to 4-1/2-inch (90- to 115-mm-) diameter, dial pressure gage with range of 0 to 250 psig (0 to 1725 kPa) minimum
3. Water System Piping: Include caption "WATER" or "AIR/WATER" on dial face.
4. All pressure gauges shall be UL listed spring pressure gauges with 90 mm dial. Each gauge shall be controlled by a valve having arrangement for draining.
5. Install gauges on the suction and discharge side of all pumps, on incoming water services and at the highest point of all hydrant risers.

3.12 Pressure Reducing Valves

A. Where required for installation in the Fire Protection Systems, the PRV shall be UL/FM direct acting, site adjustable type, of bronze (up to 50mm) or cast iron (65mm and larger) construction

B. The pressure reducing valves shall be suitable for maximum working pressure that exist within the system and downstream pressure should be site adjustable between 5 and 8 bar. Refer to Schematic drawings for the minimum locations at which PRV's shall be required.

C. All PRVs shall be equipped with built in pressure gauge and Gate Valves on Both Sides / PRVs shall be installed as working & standby arrangement weather shown or not shown on drawings.

3.13 Flow Alarm Switches

1. Flow alarm switch shall be UL listed and FM approved for the size of pipe in which it is installed as a paddle type water flow indicator.

2. Each flow switch shall be completed with, supervised shut-off valve, drain valve and test valve and with sight glass.

3.14 Fire Department Breeching Connections

1. Four (4) ways breeching connections for use as alternative water supply entries by the Local Fire Department shall be of 65 mm male inlet type in accordance with BS 5041 Part 3: 1975 (1987) and local civil defense requirement.
2. UL 405, 175-psig (1200-kPa) minimum pressure rating; with corrosion-resistant-metal body with brass inlets, brass wall escutcheon plate, brass lugged caps with gaskets and brass chains, and brass lugged swivel connections.
3. Breeching connections shall be in glass fronted boxes to BS 5041: Part 5: 1974 (1987) marked "Wet Riser Inlet" in English and Urdu.
4. Type: Flush, with four inlets and square or rectangular escutcheon plate.
5. Type: Exposed, projecting, with two inlets and round escutcheon plate.

3.15 Inspector Test Connections and Drains

Provide Inspector's test connections, riser drains and low point drains as required in NFPA 13 and NFPA 14. Drains and test connections shall be piped to drain risers in locations acceptable to the Engineer. Further, drain piping backfilling to fire water tank shall be from top of tank.

3.16 Identifications Tags

Properly lettered polished brass or bronze metal tags conforming to NFPA 13 shall be attached to each valve and alarm device.

3.17 Supervisory Switches

1. All supervisory switches controlling the pumps operations system shall be UL listed.
2. The “Normally Open” (N.O) contacts shall include trouble on the fire alarm control panel without sounding an alarm.
3. All electrical service wiring for monitoring switches shall be supplied and installed as per NFPA 70.
4. Monitoring switches shall be arranged to initiate an alarm condition on the fire alarm control panel if the valve is closed or open (as applicable) or tampered with.

3.18 Painting

1. All fire protection piping shall be painted red in accordance with Civil Defence requirements.
2. All external steel surfaces shall be thoroughly cleaned to remove rust, scale etc. before applying the primer.
3. All underground piping shall be provided protective wrappings.
4. All over ground piping/hose boxes/landing valves/hose reel, M S frames etc. shall be painted with two (2) coats of RED LEAD primer or equivalent followed by two coats of Post Office Red colored Synthetic enamel finish paint.
5. All other equipment shall be given a red oxide/zinc chromate primer and two (2) coats of synthetic enamel.

SECTION -4

ELECTRICAL & CONTROL SYSTEMS

Contractor to supply, install, testing and commissioning of all power cables, control cables, electrical accessories, electrical and control components and related works, terminations etc. at his own cost and to accommodate cost in BOQ items.

4.1 Controls

1. Electric Motor driven fire & jockey pumps & diesel engine driven fire pump shall start automatically through preset pressure switches in proper sequence as mentioned above.
2. Stopping of all fire pumps shall be manual only.
3. Audio visual alarm shall be sounded when fire pumps start/starts.
4. Power supply 'ON' indication shall be provided in the Fire Pump Control Panel.

4.2 AC Motors

All AC motors shall be approved type & totally enclosed fan cooled and shall have Class B insulation with degree of protection IP 55. All motors shall be suitable for both DOL and STAR/DELTA starting, as required. The motors shall have also two distinct terminals for Earthing. All the motors shall be suitable for 415 V (- 15% to + 5% variation) 3 phase 50 HZ plus minus 3% AC supply.

4.3 Motor Control Centre (MCC)

1. The MCC shall be made of sheet steel of thickness not less than 2 mm, totally enclosed, self-supporting, floor mounted dust and vermin proof cubicle type construction with multitier compartmental arrangement with degree of protection IP 54. It shall have a series of panels of

uniform height placed side by side with front access for operation as well as cabling. MCC panel shall be completely front wired type having all device/termination etc, approachable from front without any requirement of back access for maintenance repairs and cabling. Provision of cable entry shall be from the top or bottom to match with cable layout of the pump room.

2. The motor control circuit shall be provided with test facilities so that it is possible to test the control circuit with the main motor circuit disconnected. Control voltage shall be 240 V, A C single phase derived from an isolating transformer.
3. The main busbar of the MCC shall be of electrical grade copper and shall have continuous current rating as required but in no case less than the current rating of incoming switch fuse unit. The busbars shall be easily accessible from the front of the cubicle and shall be colour coded for phase identification. A copper earth busbar of adequate cross sectional area shall be provided in the bottom or top part of the cubicle and shall run for the entire length of the MCC.
4. Start/stop push button, auto/manual selector switch and indication shall be provided and the MCC for control of the motors.
5. Incomer cubicle shall incorporate voltmeter, ammeter with respective selector switches, power factor meter and phase indication lamps.
6. Each outgoing cubicles shall have ammeter with selector switch and on/off, trip indication lamps. Ammeters for incoming/outgoing cubicles, for motors it shall be suppressed scale type beyond full load rating up to 8 times of full load current for taking care of starting current kicks.
7. Pilot lamp to indicate circuit breaker closed and power available.
8. Individual alarm contacts relay to energize audible and visible alarm through independent source of power to indicate circuit breaker open, power failure and phase reversal.
9. Alarm and signal devices in controller and in remote location to indicate trouble on controller and pumping unit.
10. Ammeter test link and voltmeter test studs.
11. Manual selector station, two positions, marked "Automatic" and "Non-Automatic".
12. Means on controller to operate alarm signal continuously while pump is running.

13. Mark "FIRE PUMP CONTROLLER".
14. Digital Display for
    - System frequency
    - Line-to-line voltages
    - Line-to-line amperages
    - Elapsed run time
    - Pressure system settings
    - Pump starting failure
    - Over current problem
    - Under current problem
    - Pressure transmitter problem
15. Annunciator for
    - Power available
    - System trouble
    - Phase reversal
    - Low system pressure

4.4 Diesel Engine Control Panel

1. The control panel shall be made of sheet steel of thickness not less than 2 mm, totally enclosed, self-supporting, floor mounted, dust and vermin proof cubicle type with degree of protection IP 54.
2. The following features shall be incorporated in the control panel;
3. Contactors, relays, timers etc. for applying automatic starting pulses to the diesel engine on receipt of a command signal from the pressure switch with starting sequence consisting of three electrical pulses of 5 second duration each spaced at second apart.
4. Main ON/OFF isolator with DC circuit fuses and main ON indication
5. Boost cum trickle automatic battery charger with fuse protection for AC charging circuit (trickle/boost), Auto/Manual selector switch for charging, charging current meter, volt meter etc.
6. Indication/Alarm for the pump "RUN" condition, Annunciation for engine fault condition, alarm cut off switch and reset switch for fault conditions.
7. Engine start switch, engine stop switch together with Auto/Manual switch for engine starting and indication showing failure to start on 'AUTO'

8. Engine RPM indication from in built tachometer with engine.
9. Pressure-switch transducer start.
10. Fire protection equipment start.
11. Main ac power failure relay connected either to start engine or to actuate remote trouble alarm.
12. Common local alarm bell and individual trouble lamps or annunciator to indicate:
    - Low oil pressure.
    - High cooling water temperature.
    - Engine failure to start.
    - Shut down from over speed.
    - Shut down from pump operation.
    - Shut down from trouble on controller or engine.
    - Shut down from loss of ac power.
    - Battery failure for each battery.
    - Battery charger failure.
    - Low suction
    - Low fuel level
    - Water reservoir low
    - Water reservoir empty
    - Low pump room temperature
    - High fuel level
    - Main switch in auto
    - Engine run
    - Failure when running
13. Provision for selectable automatic alternate use of two separate storage batteries. With alarm if battery fails and prevention of use of defective battery on startup.
14. Intermittent cranking of engine with lock-out if engine fails to start on 6 crank periods of approximately 15 s duration separated by 5 rest periods of approximately 15 s duration.
15. Provision for lock-out alarm if a battery is disconnected or becomes inoperative.
16. Selector switch to bypass relay circuits and provide for manual

starting.

17. Provision for 10 s delayed start.
18. Sequential timing device.
19. Circuits for various engine mounted devices such as automatic chokes, anti-dieseling solenoid valve, cooling water line solenoid valve.
20. Timing relay for automatic stop.
21. Auto-manual, selector.
22. Auto" position indicating lamp.
23. Manual, start-stop pushbuttons.
24. Two built-in automatic battery chargers.
25. NEMA 3R enclosure.
26. Mark "FIRE PUMP CONTROLLER".

4.5 Cables

1. All power cables shall be multi core, 1100 V grade, PVC insulated, PVC sheathed, copper conductor cables manufactured and tested.
2. All control cables shall be multi core, 1100 V grade, PVC insulated and overall PVC sheathed with copper conductor manufactured and tested.
3. Armoured power and control cables shall be only considered.

4.6 Power supply

1. For MCC one 400 - 415 V, A C 3 phase and neutral 50 HZ feeder of adequate capacity shall be made available at the MCC incomer.
2. If the equipment is required to operate at any other voltage, necessary transformers & converters shall be included in the scope of the tenderer.

SECTION - 5

TESTING AND COMMISSIONING

This section covers testing of piping networks, valves, hydrants, sprinklers, and alarm interlocks for Final Testing of Piping Networks and System Integration. This section defines final system integration testing and inspection protocols.

5.1 General

Comply with the relevant clauses of BS EN / NFPA.

The contractor shall pressure tests all fire protection piping included in the contract. Tests shall be made after all indoor and outdoor hydrants are installed but before piping is painted, covered or concealed. All labor and

equipment required for testing is part of the contractor's responsibility.

The client shall be notified one week in advance of any testing so that the tests can be witnessed.

Defects that develop during the tests shall be promptly remedied and testing shall be reapplied to the satisfaction of the Client / Consultant. All related costs will be in contractor scope.

5.2 Particular Requirements

Carry out all tests and inspections to prove that the installation meets with the requirements of BS EN / NFPA.

Inspect and test the installation at agreed stages to ensure that the piping is properly secured and clear of obstructing debris and superfluous matter and that all work which is to be concealed is free from defects before it is finally enclosed.

Carry out a low-pressure air test, to establish whether open ends are present, prior to carrying out a hydraulic test on completion of the installation, or sections thereof.

All piping and attached appurtenances subjected to system working pressure shall be hydrostatically tested at gauge pressure of 200 psi (13.8 bar) or 50 psi (3.4 bar) in excess of the system working pressure, whichever is greater, and shall maintain that pressure at gauge pressure of ±5 psi (0.34 bar) for 2 hours.

All flow-switch testing shall be completed using a water flow detector tester in accordance with FM1043.

Test all alarms and alarm connections associated with the sprinkler installation and prove all interlocks and links to other systems and remote locations.

Upon completion of the installation of the system carry out functional tests in the presence of all interested parties to demonstrate to the satisfaction of all present that the installation conforms to the required standards.

When these tests have been accepted by all parties as being satisfactory, issue a completion certificate.

NOTE:

The system shall be handed over to the Purchaser/ Owner complete in all respects in good working condition along with records of the maintenance/ repair carried out.

5.3 TRAINING

A. The Contractor shall provide training to the Client's operations and maintenance team, covering system operation, preventive

maintenance, emergency procedures, and basic troubleshooting.

B. Schedule training with at least 7 days' advance notice.

SECTION - 6

DOCUMENTATION & SUBMITTALS

6.1 Product data

- Submit manufacturer's printed product literature, specifications and datasheet.

6.2 Shop Drawings & As-Built Drawings:

- Submit drawings stamped & signed and acceptable to the authority having jurisdiction.
- Submit shop and As-built drawings
- Indicate:
  - Materials.
  - Finishes.
  - Method of anchorage
  - Number of anchors.
  - Supports.
  - Reinforcement.
  - Assembly details.
  - Accessories.
- **Wiring Diagrams:** Submit manufacturer's electrical requirements for power supply wiring to pumps. Submit manufacturer's ladder type wiring diagrams for interlock and control wiring. Clearly differentiate between portions of wiring that are factory – installed and portions to be field installed.
- Full hydraulic calculations based on shop drawings to verify actual flow and head operating conditions. Calculations shall be approved by the Consultant prior to final selection of equipment.

6.3 Quality Assurance Submittals

A. Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

B. Instructions: submit manufacturer's installation instructions.

6.4 Operation and Maintenance Manuals:

- Provide detailed operation and maintenance manual.
- **Maintenance Data:** Submit maintenance data and parts lists for each type of pump, control and accessory, including "trouble – shooting" maintenance guide. Include this data, product data, shop drawings and wiring diagrams in maintenance manual.

6.5 Quality Assurance

C. Installer: Persons having experience in wet sprinkler systems with 2-5 years documented experience.

D. Health and Safety: Do construction occupational health and safety in accordance with relevant standards and owner's facility safety manual.

E. Manufacturer's Qualifications: Firms regularly engaged in manufacture of general use, centrifugal pumps with characteristics, sizes and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.

F. Certification, Pump Performance: Provide pumps whose performances, under specified operating conditions, are certified by manufacturer.

6.6 Delivery, Storage and Handling

- Handle pumps and components carefully to prevent damage, breaking, denting and scoring. Do not install damaged pumps or components, replace with new items.
- Store pumps and components in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.
- Witness test for Fire pump has to be performed by the Consultant, Client and Contractor. The witness test shall be carried out in country of origin and pump performance shall evaluated as per NFPA-20

➢ **Storage and Protection:**

- Store materials indoors in dry location.
- Store and protect materials from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.

➢ **Waste Management and Disposal:**

- Construction/demolition waste management and disposal to appropriate locations and as per owner's instructions.

SECTION - 7

WELDING STANDARDS & PROCEDURES

7.1 General Welding Requirements

All welding activities associated with firefighting piping systems shall comply with the project specifications, applicable codes, and referenced standards. Welds between pipe and outlet fittings may consist of full penetration groove welds, partial penetration groove welds, or fillet welds.

Circumferential butt joints shall be properly cut, beveled, and fitted to ensure potential for full penetration where required. Face welds on internal faces of flanges may be provided as a water seal in addition to the required hub welds. Welded connections for slip-on flanges shall meet minimum throat weld thickness standards — 1.25 times the pipe wall or hub thickness, whichever is less.

Tabs for longitudinal earthquake bracing shall be double welded with a minimum throat thickness of 1.25 times the pipe wall.

When welding is performed, the following conditions shall be met:

- Outlet holes must be cut to the full inside diameter before welding
- Internal slag and welding residue shall be thoroughly removed
- Pipe openings shall be smooth-bored, free from intrusions
- Fittings shall not penetrate into pipe interiors or be modified
- Steel plates shall not be welded onto pipe ends
- Only permitted brackets or anchors may be welded
- Welds must be free from cracks, incomplete fusion, or unacceptable porosity
- Undercuts shall not exceed 25% of wall thickness or 0.8 mm (1/32”), whichever is less

Reinforcement of circumferential butt welds shall not exceed 2.4 mm (3/32”)

All completed welds shall be neat, uniform, and shall comply with acceptance criteria per AWS D1.1.

7.2 Welder Qualifications and Procedure Approval

All welding procedures and welder qualifications must conform to one of the following standards:

- **AWS B2.1:** Specification for Welding Procedure and Performance Qualification
- **ASME Section IX:** Boiler and Pressure Vessel Code – Welding and Brazing Qualifications
- **NFPA 13**, Section 6.5.2.5.3 (where applicable)

Each contractor or fabricator must prepare and qualify a welding procedure specification (WPS) before beginning any welding works. Successful procedure qualification for complete joint penetration groove welds shall also qualify fillet and partial penetration welds.

Qualified welding procedures from earlier project phases or previous editions of accepted standards may be reused upon approval. All contractors shall retain certified records of qualifications, procedures, and welder IDs. These must be made available for inspection by the Consultant or Authority Having Jurisdiction (AHJ).

Each weld shall be traceable to its welder, who must mark the pipe or fitting with their ID number or label adjacent to the weld.

7.3 Weld Inspection and Testing

In addition to visual inspection, welds shall be subject to Non-Destructive Testing (NDT) based on criticality and as directed by the Consultant. Acceptable methods include:

- **Radiographic Testing (RT)** for full-penetration welds under pressure
- **Dye Penetrant Testing (PT)** or **Magnetic Particle Testing (MT)** for surface cracks or flaws
- **Visual Testing (VT)** per AWS D1.1 for general weld workmanship

All NDT shall be performed by certified personnel in accordance with **ASNT SNT-TC-1A or ISO 9712**. The Contractor shall maintain a **Weld Logbook** onsite detailing:

- Welder identification
- Weld location
- Type of weld and testing method
- Test results and any repair actions

Welds failing inspection shall be removed and re-executed using approved repair procedures, followed by re-inspection. Final acceptance of welds is subject to approval by the Consultant and the AHJ.

7.4 Welding Records and Quality Assurance

Contractors and fabricators shall maintain comprehensive certified records for all welding work, including:

- Welding procedure specifications (WPS)
- Performance qualification records (PQRs)
- Welder performance qualification certificates

- Daily welding logs
- Weld inspection and testing reports

A written **Quality Assurance Plan (QAP)** for welding works shall be submitted prior to mobilization. The QAP shall define procedures to ensure compliance with specification requirements, welder qualification control, inspection protocols, and corrective action processes.

The Consultant and AHJ reserve the right to audit welding documentation at any time during the course of the project.

SECTION - 8

SPARE PARTS & RESERVE CABINETS

Bidder will provide list of recommended spares for Pumps, Valve & fittings etc. operational use with cost as per NFPA and OEM.

8.1 Reserved Cabinet

Supply and install reserve cabinets, each containing spares and tools as mentioned above. The cabinet shall be spot welded construction, fabricated from low carbon steel sheet. The box and shelves shall be fabricated from minimum 0.030 inch thick material and the cover shall be fabricated from 0.042 inch thick material. The cabinet shall be painted bright red and enamel paint side and out and labels. The cabinet shall be rigidly attached to walls as specified by client / consultant.

8.2 Recommended Spare Parts & Warranty

A. The Contractor shall supply all recommended spare parts necessary for the specified maintenance period, covering a minimum of three (3) years of operation.

B. All equipment shall carry a minimum warranty of twelve (12) months from the date of commissioning, including free-of-cost replacement or rectification of any defective parts, equipment, labor, and round-trip transportation to and from the project site.

8.3 Spare Parts Requirements:

A. The Tenderer shall include the cost of a complete set of fire pump spares required for at least three (3) years of continuous operation.

B. Warranty coverage must include both electrical and mechanical components of the pump set (including control panels).

C. All spare parts shall be delivered in clearly labeled, sealed packaging, with part numbers and manufacturer identification for traceability.

D. The cost of these spares shall be included in the overall quoted price of

the fire pump.

E. The list of spares shall be based on OEM recommendations and shall include, but not be limited to, the following minimum items:

Description	Qty
Inboard Bearing	1 Nos
Outboard Bearing	1 Nos
RH Shaft Sleeve and Oring	1 Nos
LH Shaft Sleeve and Oring	1 Nos
Case Rings	2 Nos
Packing	2 Nos
Mechanical Seal, if applicable	1 Nos
Casing Gasket	1 Nos
Pump Shaft	1 Nos
Impeller	1 Nos
Shaft Sleeves	1 Nos
Bearing and housing	1 Set
Mechanical Seal or Packing and Glands/bolts.	1 Set

SECTION - 9

WARRANTY & CLOSEOUT REQUIREMENTS

The bidder shall provide One (01) year warranty period from the date of commissioning for the offered products, and free of cost replacement/rectification of defected parts/equipment, labour, freight, transportation of part/equipment from - to site.

LIST OF APPROVED MANUFACTURERS/BRANDS OF MATERIALS/EQUIPMENT

S. No.	Equipment / Material	Approved Manufacturers / Brands	Origin
1	Fire Pump	KSB, Grundfos, Aurora, Patterson, NAFFCO	Germany, Denmark, USA, UAE
2	Fire Pump Control Panel (MCC/VFD/Star-Delta)	Schneider, Siemens, ABB, NAFFCO	Germany, France, UAE
3	HDPE Pipes (PN10/PN16)	Dadex, AGM, Pak Arab, Wavin, GF Piping Systems	Pakistan / Europe
4	MS Fire Pipes (UL/FM, Seamless, Sch-40)	IIL, Jamal Pipes, Huffaz, Baosteel, Tenaris	Pakistan / China / Europe
5	Pressure Gauges & Thermometers	Dwyer, Weiss, Weksler, Trerice	USA
6	Flow Switch & Pressure Switch	System Sensor, Potter, HD Fire, SRI	USA, Malaysia
7	Fire Hose Reel Cabinet (Double Compartment)	Haseen Habib, NAFFCO, SRI	Pakistan / UAE / Malaysia
8	Hose Reel, PRV, Landing Valve, Nozzles	NAFFCO, HD Fire, SRI, TYCO	UAE / USA / Malaysia
9	Fire Extinguishers (CO_2 / ABC)	NAFFCO, Haseen Habib, SRI	UAE / Pakistan / Malaysia
10	Fire Hose Rack Cabinet (Single Compartment)	Haseen Habib, NAFFCO, SRI	Pakistan / UAE / Malaysia
11	UL/FM Lay Flat Hose with Nozzle	Angus Fire, NAFFCO, HD Fire	UK / UAE / Malaysia
12	Fire Hydrant (Wet Barrel, AWWA C503)	Kennedy, AVK, Clow, NAFFCO	USA / Denmark / UAE
13	Breeching Inlet (2-Way)	NAFFCO, HD Fire, SRI, Haseen Habib	UAE / Malaysia / Pakistan
14	Air Release Valve (Cast Iron, SS Float)	Spiraz-Sacro, VENN, Val-Matic, AVK	USA / Europe
15	Non-return Valves (NRV / Check Valves)	Kitz, AVK, Econosto	Japan / Denmark / Netherlands
16	Test Line Assembly & Drain Valves	Kitz, Pegler, AVK	Japan / UK / Denmark
17	Seismic Supports & Anchors	Hilti, Unistrut, Hilal Industries	Germany / Pakistan

18	Painting & Finishes	ICI, Jotun, Nippon	Pakistan / International
19	Fire Dept Connection Signage	Local Fabricator (Engineer's Approval)	Pakistan
20	PVC Conduit & Accessories / Halogen Free	Beta, Popular, Tesco, Galco, Dadex, Decoduct, Euro Gulf	Pakistan / UAE / Europe
21	Steel Conduit & Accessories	Hilal Industries, IIL, Jamal, Dietzel-Univolt	Pakistan / Austria
22	LV Circuit Breakers (MCB, MCCB, ELCB, ACB)	Merlin Gerin, Siemens, ABB, Terasaki, LS, Legrand	France / Germany / Japan / Korea
23	LV Magnetic Contactors, Starters & Relays	ABB, Siemens, Schneider, LS, Legrand	Germany / France / Korea
24	Power Capacitors	Panasonic, Ducati, Entes, Schneider	Japan / Italy / Turkey / Germany
25	LV Capacitor	Amber Capacitor, Entes, Nokian, INCR, Schneider, Gruppo Energia	Pakistan, Turkey, Finland, Italy
26	PF Controller	Nokian, ABB, Siemens, Schneider, Entes	Finland / Germany / Turkey
27	Series Reactor	Panasonic, Nokian, Schneider	Japan / Finland / Germany
28	Timer	National / Panasonic, Entes, ABB, GE	Japan, Turkey, Germany, EU
29	Cable	Pakistan Cables, Pioneer Cables, or equivalent)	Pakistan
30	Push Buttons and Indication Lights	Maruyasu, GE, Schneider	Japan, EU
31	Current Transformer / Voltage Transformer	Circutor, Revalco, Entes, Complee	Italy, Turkey
32	Measuring Instruments (CT, VT, Meters)	Circutor, Revalco, Entes, Lumel	Italy / Turkey / Poland
33	Programmable Logic Controllers (PLC)	Siemens, ABB, Schneider, LG	Germany / France / Korea
34	Switchgear Accessories (VSS / ASS / Push Buttons, Indications)	Kraus & Naimer, Schneider, GE, Maruyasu	Austria / Germany / Japan
35	HRC Fuses	Siba, ETI, Bussmann	Germany / EU

BILL OF QUANTITIES
(Firefighting System)

BILL OF QUANTITIES

COST SUMMARY

S. No.	Description	Amount (Pak. Rs.)
1	**Fire Fighting System**	
A	**TOTAL CONSTRUCTION COST OF FIREFIGHTING WORKS (PKR) (Inclusive of All Taxes)**	
B	**LESS SALVAGE VALUE**	
C=A-B	**NET CONSTRUCTION COST OF FIREFIGHTING WORKS (PKR) (Inclusive of All Taxes)**	

Notes:

1. All quoted prices shall be inclusive of all incidental services, including labor, tools, materials, handling, testing, commissioning, and coordination. No separate payment shall be made for such services.
2. Payments shall be made on actual executed and verified quantities as per quoted unit rates. Measurements shall be verified by the Engineer.
3. Quoted unit rates shall remain firm and non-adjustable throughout the contract period, regardless of market fluctuations.
4. The Bidder must quote for the entire scope of works. Partial, incomplete, or conditional bids shall be rejected without further consideration.
5. The Bidder shall submit the following documents with the offer and upon award: technical literature, product datasheets, and brochures; operation & maintenance (O&M) manuals; complete installation, testing & commissioning procedures; and as-built drawings upon project completion.
6. Testing procedures and method statements shall be submitted for approval by the Client/Engineer prior to execution.
7. The Bidder shall clearly specify the country of origin for each major item quoted.
8. The Contractor shall be fully responsible for integrating the new fire fighting components with the existing fire protection and MEP infrastructure.
9. The Contractor shall ensure on-site coordination with all running MEP services to avoid disruption and ensure seamless system compatibility.
10. Prior to procurement, the Contractor or Manufacturer shall provide brand genuineness certificates and authorized distributor certificates for all major equipment and components.
11. The Bidder shall be fully responsible to deliver a complete, operational fire protection system, including all required items, accessories, and works—even if not explicitly mentioned in the BOQ—necessary to meet functional, code, and safety requirements.
    Any such scope or items foreseen by the Bidder during detailed design, installation, or commissioning shall be deemed included in the quoted price.

BILL OF QUANTITIES
Firefighting Works

Item No.	Description	Unit	Qty.	Rate (Pak Rs.)	Amount (Pak Rs.)
1	**HDPE Fire Pipes (Buried):**				
I ii	Supply, installation Testing and Commissioning of Poly Ethylene PE100 PN-16 water supply pipes for buried applications as per BS DIN 8074-8075 and PS-3580 with fusion fittings including excavation, backfill, pipe supports as indicated on the drawing, as per specifications, approved manufacturers list and Engineers approval. 4" dia 6" dia	Rft Rft	60 600		
2	**MS Fire Pipes:**				
I ii iii iv	Supply, installation, testing, and commissioning of UL Listed and FM Approved seamless black steel pipe, ASTM A53 Grade B, Schedule 40, including all heavy-duty welded fittings (tees, reducers, bends), supports, hangers, sleeves, and equipment connection points. Work includes painting, color coding, coating/wrapping, and all accessories as per drawings and specifications. Includes loading, unloading, delivery, and installation at site. Complete in all respects as per approved manufacturer list and The Engineer's approval. 1" dia 2 1/2" dia 3" dia 4" dia	Rft Rft Rft Rft	40 110 110 300		

3	**Fire Hose Reel Cabinet (Double Compartment):**				
	Supply, installation, testing, and commissioning of a double-compartment Fire Hose Reel Cabinet (exposed type), fabricated from mild steel with a solid front and metal/glass door, suitable for housing two lengths of fire hoses. The cabinet shall be equipped with a stainless steel lock and handle, and include all internal components as listed below. One (1) X 1 inch diameter, 100 ft high pressure rubber hose reel tested on 30 bar with PRV (Pressure Reducing valve), Gate Valve and inlet lock shield control valve and Adjustable plastic Nozzle for Jet, spray and Shut off. One (1) X 2.5 inch, 100 ft Long lay flat hose Rack + nozzle One (1) X 2.5 inch diameter Landing valve Dia (type E) with Kite Mark One (1) X 6 Kg CO2 Extinguisher One (1) X 5 Kg ABC type Dry powder Extinguisher The complete assembly shall conform to approved drawings, technical specifications, and the approved manufacturer's list, and shall be subject to approval by the Engineer. All works shall be completed in all respects.	Nos.	16		
4	**Fire Hose Rack Cabinet (Single Compartment):**				
	Supply, installation, testing and Commissioning of Single compartment metal steel Fire Hose Rack cabinet (Exposed or recessed type) with Stainless steel finish door and Glass, lock and handle,along with following equipment as indicated on the drawing, as per specifications, approved manufacturer list and Engineers approval. 1-1/2" Dia and 100 ft Long high pressure UL/FM Lay flat hose rack with EPDM coating tested at 300 PSI with brass Adjustable Nozzle for Jet, spray and Shut off.	Nos.	3		
5	**Fire Hydrant:**				

	Supply and Installation of Wet Barrel Pillar type fire hydrant as per AWWA C503 and NFPA-24 with one front outlet size 100mm diameter and two side outlets each 2.5 inch diameter as indicated on the drawings complete with Concrete base, Supports, Shut off valves and other accessories. as indicated on the drawing, as per specifications, approved manufacturer list and Engineers approval.	Nos	3		
6	**Breeching Connection:**				
	Supply, installation, testing, and commissioning of 4" dia, 2-way Fire Brigade Breeching Inlet Connection with main barrel, non-return valve, and weather-resistant cabinet, conforming to NFPA-24 standards. All work shall be carried out as indicated on the drawings, in accordance with the specifications, approved manufacturer list, and subject to the Engineer's approval. Complete in all respects.	Nos	1		
7	**Air Release Valve:**				
	Supply and installation of 1" automatic air release valve as per ASTM A126 Class B of Cast iron Body and Stainless Steel Orifice and Float to be installed on top of each Riser with Pressure Gauge and at high points of pipeline network to prevent air locking. Includes isolation valve, fittings, and drain piping.	Nos	2		
8	**General Mechanical System: (Includes following Works)**				
8.1	<u>Painting And Finishes:</u>				
	Providing Painting and Finishing including stenciling and identification tags as specified in technical specifications and as directed by the Engineer Incharge, complete in all respect.				
	<u>Hanger & Supports:</u>				
8.2	Supply & installation of hangers, Rods, Anchors, Expansion Joints and Seismic Supports for fire piping work as per NFPA-20 and as per Specification Section-3 " Fire Protection Piping & Accessories" including support load calculations.	Job	1		
	<u>Shop Drawings & As-Built Drawings:</u>				

8.3 8.4	Providing Shop Drawings and As Built Drawings in A1 size (3 Sets) with Electronic Copies, as specified in specifications, complete in all respect and as directed by the Engineer in charge. <u>Test Run:</u> Providing two months Test Run as specified in specifications, as advised by the Consultant/Client and as directed by the Engineer incharge. After satisfactory completion of test run, a certificate will be issued to the Contractor.				
9	Supply and execution of all materials and works required for modifications, temporary supports, pads, sleepers, demolishing, restoration, trenches, excavation, backfilling, sleeves, and core cutting. This also includes breaking through walls, ceilings, and roofs as necessary, and the complete restoration of affected areas (including ceiling finishes) to original or approved condition. All such works shall be carried out by the Contractor to ensure the firefighting system is fully functional and integrated with the existing structure in accordance with the technical specifications and as advised by the Consultant/Client and as directed by the Engineer incharge.	Job	1		
10A	**Dismantling Works:**				

	Dismantling and removal of existing MS pipes, fire hose cabinets (FHCs), fire hydrants, hangers, and supports, complete in all respects, including stacking of serviceable items at the designated location, as instructed by the Engineer / Client / HVAC Engineer. All holes left in slabs, walls, or ceilings due to removal works shall be properly plugged and waterproofed using approved materials, and finishes restored to original condition.	Job	1		
10B	**Demolition of Serviceable Items with Salvage Valuation – Less: Credit to SLICP for salvageable materials**				
	Dismantling and removal of existing firefighting components (MS pipes, FHCs, hydrants, hangers, supports), with careful handling and stacking at the designated location in accordance with technical specifications and as advised by the Consultant/Client and as directed by the Engineer incharge. Salvageable items to be jointly inspected and valued, and their assessed value credited to SLICP. Upon credit, salvage becomes the property of the Contractor.	Job	-1		
11	**Fire Pump (End Suction):**				

i	Supply, installation, testing, and commissioning of a diesel engine-driven end suction standby fire pump set, mounted on a common skid with integrated control panel. The scope includes construction of pump foundation, interconnection of suction and discharge lines with the existing system, and provision of any required valves (only where not already installed), strainers (if applicable), and suction/discharge headers necessary for proper integration. The item also includes installation of gauges, pressure and flow switches (if separate for the standby unit), and control wiring from panel to pump. Transportation, rigging, lifting, placement, alignment, and full integration with the existing fire protection system are included. All works shall be executed in accordance with the approved drawings, equipment schedule, technical specifications, and to the satisfaction of the Engineer. **Note:** The existing duty fire pump shall remain operational. This item is limited to the installation of a new standby pump only. Components already installed for the duty pump (such as headers, valves, or piping) shall not be duplicated unless specifically required for the functional operation of the standby configuration. End Suction Fire Pump (1 Standby) Flow = 500 GPM @ 10 bar	Nos.	1		
A	***Sub -Total Amount Rs. Carried to Summary***				
B	Salvage Value (TOTAL AMOUNT TO BE CREDITED TO THE SLICP) Dismantling and removal of existing firefighting components—including MS pipes, fire hose cabinets (FHCs), fire hydrants, hangers, and supports—complete in all respects, with careful handling, including proper stacking of serviceable items at the designated location as instructed by the Engineer / Client / HVAC Engineer. All salvageable items shall be jointly inspected and valued, and their assessed salvage value credited to SLICP. Upon credit, the salvage shall become the property of the Contractor				

DRAWINGS
(Firefighting System)

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIREFIGHTING / HYDRANT SYSTEM IN STATE LIFE BUILDING NO. 9 DR. ZIAUDDIN AHMED ROAD, KARACHI.

VOLUME - III

TENDER DRAWINGS

JULY 2025

CLIENT

STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

CONSULTANT

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LIST OF DRAWINGS

DRAWING NO.	DRAWING NAME
HA-ENG CON SLB-FF-LD-00	LIST OF DRAWING
HA-ENG CON SLB-FF-LG-01	LEGEND (ABBREVIATIONS AND GENERAL NOTES
HA-ENG CON SLB-FF-RD-02	FIRE RISER DIAGRAM
HA-ENG CON SLB-FF-GF-03	GROUND FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-1F-04	FIRST FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-2F-05	SECOND FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-3F-06	THIRD FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-4F-07	FOURTH FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-5F-08	FIFTH FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-6F-09	SIXTH FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-7F-10	SEVENTH FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-8F-11	EIGHT FLOOR FIRE FIGHTING LAYOUT
HA-ENG CON SLB-FF-SD-12	STANDARD DETAILS
HA-ENG CON SLB-FF-ES-13	EQUIPMENT SCHEDULE

NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

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STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

PROJECT:

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIREFIGHTING / HYDRANT SYSTEM IN STATE LIFE BUILDING NO. 9 DR. ZIAUDDIN AHMED ROAD, KARACHI.

CONSULTANT

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TITLE

LIST OF DRAWING

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-LIS-00	SCALE: N.T.S	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00

GENERAL NOTES FOR FIRE SUPPRESSION SYSTEM DRAWINGS

1. The design, installation, testing, and commissioning of the fire suppression system shall comply with the latest editions of NFPA-13, NFPA-14, NFPA-20, the International Building Code (IBC), and all applicable local fire and building codes.
2. This drawing is the property of State Life Insurance Corporation of Pakistan (SLICP) And shall not be copied, reproduced, or used without prior written approval.
3. Specifications and drawings are complementary and must be read together to ensure a complete understanding of the work.
4. Do not scale this drawing. All dimensions shall be verified on site before starting any work.
5. All dimensions and levels are in millimeters unless otherwise noted. The Contractor shall verify all dimensions and levels on site and obtain written approval from the Consultant prior to commencement of construction.
6. The drawings shall be read in conjunction with the relevant architectural, structural, mechanical, electrical, and plumbing/sanitary drawings, And all related sections of the project specifications.
7. The contract drawings are diagrammatic and intended only to support bidding and estimation. They shall not be used for installation. The Contractor is responsible for preparing and submitting detailed shop drawings for Consultant's approval prior to execution of works.
8. The Contractor shall submit three (3) sets of as-built drawings in A1 size, along with editable electronic copies in DWG and PDF formats, in accordance with project specifications and to the satisfaction of the Engineer Incharge.
9. The Contractor shall prepare coordinated shop drawings, perform accurate setting out of all works, And verify all site conditions and dimensions before installation begins.
10. Standard details provided on the drawings shall be strictly followed, even if a reference detail Number is not explicitly mentioned on the arrangement drawings.
11. The Contractor shall carry out all necessary demolition, restoration, temporary works, excavation, backfilling, core cutting, slab/wall penetrations, And trenching required for complete installation of the fire suppression system. All affected areas shall be restored to their original condition using approved methods and materials, at no additional cost to the Employer.
12. The salvage value of dismantled fire suppression piping and components (the "old line") shall be accounted for in the BOQ as a deduction. The Contractor shall properly plug and waterproof all slab penetrations left after the removal of the old piping using approved materials And methods, ensuring no leakage or structural compromise.
13. The Contractor shall install sleeves of the correct size and at the correct locations in masonry and concrete works before casting. Any additional cutting, patching, or making-good caused by lack of coordination shall be carried out at the Contractor's cost.
14. Holes left in concrete slabs after the removal of old piping shall be properly plugged, sealed, and made water-proof using Approved materials, to prevent water ingress and ensure structural integrity.
15. Existing fire pumps designated to remain in operation (on-duty pumps) shall be retained and kept functional throughout the construction period, unless otherwise instructed in writing by the Consultant.
16. Standby fire pumps shall be installed adjacent to the on-duty pumps and shall be connected to the electrical system and the standby generator to ensure redundancy and operational readiness during power failures.
17. As per the approved project phasing plan, demolition and removal of old fire suppression lines shall only be carried out After the successful installation, testing, and commissioning of new lines. This is to ensure uninterrupted fire protection coverage during the transition.
18. Dismantling and removal of existing fire suppression equipment (e.g., MS pipes, Fire Hose Cabinets, Fire Hydrants, supports) shall be carried out as per Instructions of the Engineer/Client. All reusable components shall be relocated or stored as directed, and any affected surfaces shall be restored to a serviceable condition.
19. All service access panel positions shall be coordinated by the Contractor with the ceiling contractor wherever applicable.
20. The Contractor shall modify piping arrangements as needed to resolve conflicts with existing services or building elements (e.g., light fixtures, ducts, conduits, equipment), at no additional cost to the Employer.
21. The Contractor shall supply, install, test, and commission diesel engine-driven end-suction fire pump sets. The scope includes foundations, suction and discharge piping, Valves, strainers, headers, gauges, accessories, and full integration with the fire alarm and power systems. The Contractor shall also perform offloading, rigging, Rigging, placement, alignment, and anchoring of equipment in accordance with approved shop drawings and technical specifications.
22. All mechanical equipment and components shall be installed in accordance with the manufacturers' printed installation instructions, contract documents, and applicable codes and regulations.
23. All manufacturer-recommended clearances shall be maintained around fire protection equipment for accessibility and maintenance.
24. A copy of all manufacturer's installation instructions shall be maintained at the project site for reference and inspection during construction.
25. No cutting or drilling of structural members is permitted under any circumstances.
26. The Contractor shall coordinate their work with the main building contractor and all other subcontractors to avoid conflicts and delays.
27. Any discrepancy between drawings, specifications, or site conditions shall be brought to the attention of the Consultant prior to procurement, Fabrication, or installation. The Contractor shall not proceed until written clarification is provided.
28. All hangers and supports for fire protection piping shall be proprietary, approved models. Locally fabricated supports are not permitted unless specifically approved in writing by the Consultant.

FIRE STOPPING:

29. All penetrations through fire-rated walls or floors (due to ducts, piping, conduits, etc.) shall be sealed using UL-listed fire-rated assemblies, In accordance with applicable codes and fire-stopping guidelines.

FIRE SUPPRESSION PIPING:

30. The Fire Protection Contractor shall submit detailed layout drawings for Consultant approval prior to installation, showing pipe sizes, routing, hanger types, support spacing, and sway bracing.
31. Before starting any work, the Fire Protection Contractor shall verify the available space and headroom for installation of piping and equipment with the structural and architectural drawings. If any system requires more space than allowed, the issue shall be brought to the Consultant's attention for resolution.
32. Sway bracing for the fire suppression system shall comply with the latest edition of NFPA-13. The maximum spacing between lateral braces shall be 12.2 meters (40 feet), And between longitudinal braces shall be 24.4 meters (80 feet).
33. All fire protection piping of diameter 50 mm (2") or less shall be threaded unless otherwise approved.
34. Fire suppression piping shall be sloped and arranged so all parts of the system can be completely drained. Drain valves shall be provided at all low points and as necessary.
35. All fire suppression piping shall be painted red and clearly labeled with flow direction and service type as per NFPA and local regulations.
36. All piping systems shall undergo hydrostatic testing at 1.5 times the system working pressure (minimum 200 psi) for 2 hours, witnessed by the Consultant or Authority Having Jurisdiction (AHJ). Functional testing of valves, pumps, and alarms shall also be performed.
37. Upon successful hydrostatic and functional testing, the Contractor shall provide a two-month operational test run for the complete fire suppression system. Any deficiencies shall be promptly addressed. The system shall be monitored in coordination with the Consultant/Client, and a final performance certificate Shall be issued by the Consultant/Client upon successful completion of the test run.
38. All fire protection equipment interfacing with electrical/control systems (e.g., pump controllers, pressure switches, flow switches) Shall be properly connected and integrated with the fire alarm system or Building Management System (BMS) as per approved control diagrams.
39. Upon completion, the entire fire suppression system shall be subject to final inspection and approval by the Civil Defence Department or relevant local fire authority, and a final sign-off shall be obtained from the relevant authority prior to system handover.

FIRE LEGEND

SYMBOL	DESCRIPTION
	IDENTIFICATION NUMBER, SCHEDULED OR DETAILED
	FIRE WATER PIPE
	HDPE BURIED FIRE PIPE
	FIRE BRIGADE CONNECTION (FBC)
	HOSE CABINET (HC)
	OS & Y VALVE
FP	PUMP CONTROLLER
	PRESSURE RELIEF VALVE
	CHECK VALVE
	WASTE CONE WITH SIGHT GLASS
	FLOW METER
	SUCTION GAUGE
	BALL VALVE
	OS & Y VALVE WITH CHAMBER (OS&Y)
	ALARM CHECK VALVE
	FIRE HYDRANT BARRICADES
	FIRE PUMP
	FIRE HOSE REEL
	LANDING VALVE
	EXTERNAL FIRE HYDRANT (FH)
	CO2 EXTINGUISHER
	DRY CHEMICAL EXTINGUISHER
	WET CHEMICAL EXTINGUISHER
	DOYMA SLEEVE
	STRAINER
	SWAY BRACING-LONGITUDINAL SWAY BRACE
	SWAY BRACING-TRANSVERSE SWAY BRACE
	FOUR SWAY BRACE
	BRANCH RESTRAINT

NO.	DATE	REVISIONS	REV.BY	CKD.BY
01	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

PROJECT:

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIREFIGHTING / HYDRANT SYSTEM IN STATE LIFE BUILDING NO. 9 DR. ZIAUDDIN AHMED ROAD, KARACHI.

CONSULTANT

HA Eng Con International
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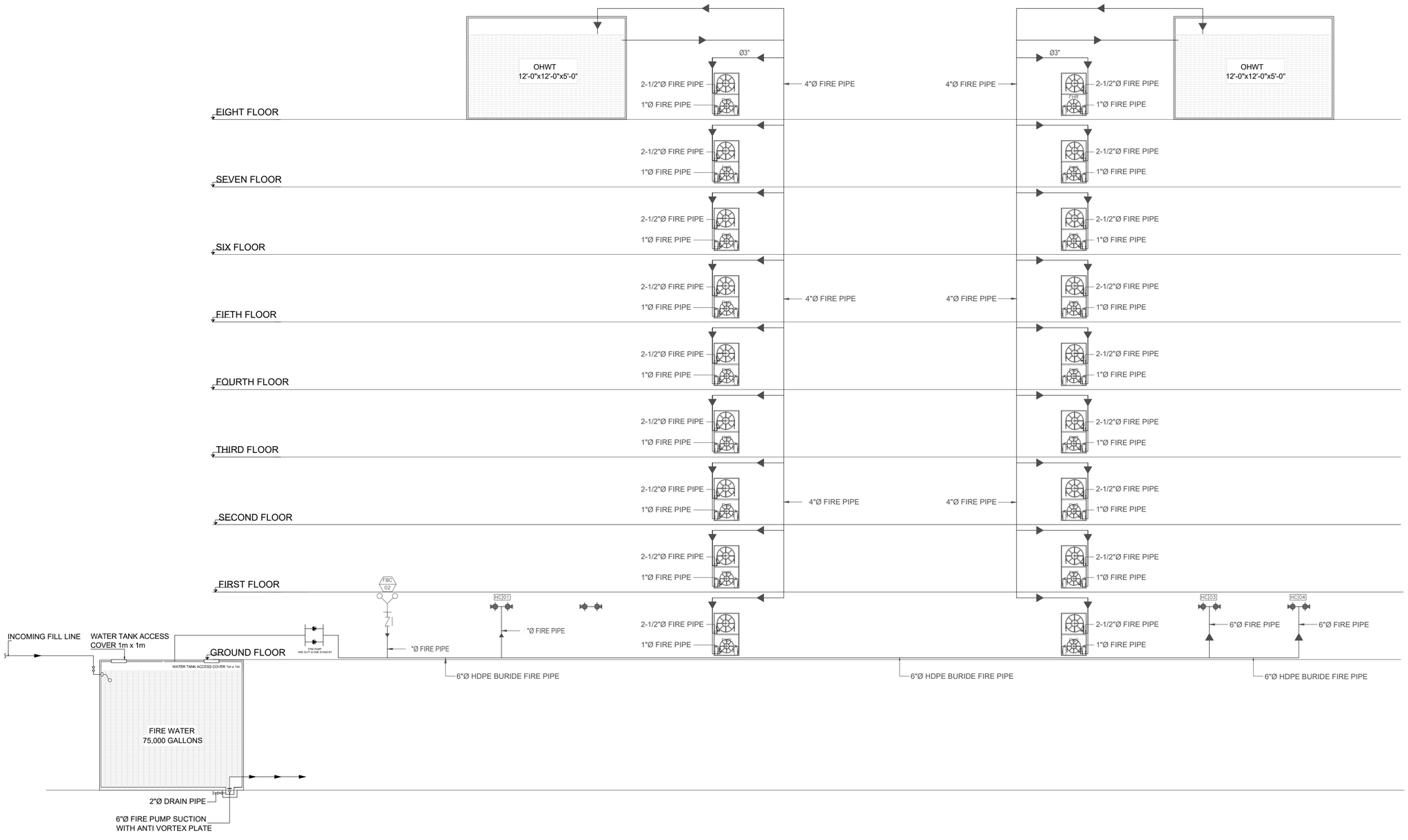
TITLE

LEGENDS (ABBREVIATIONS) AND GENERAL NOTES

DESIGN BY: Name/Signiture	DRAWN BY:
Muhammad Imran	Muhammad Talha
CHECKED BY: Name/Signiture	APPROVED BY: Name/Sig.
Asghar Hussain	Saima Majeed

DRAWING NO.	SCALE:	JOB NO.
HA-ENG CON SLB-FF-LG-01	N.T.S	HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



NO.	DATE	REVISIONS	REV.BY	CKD.BY
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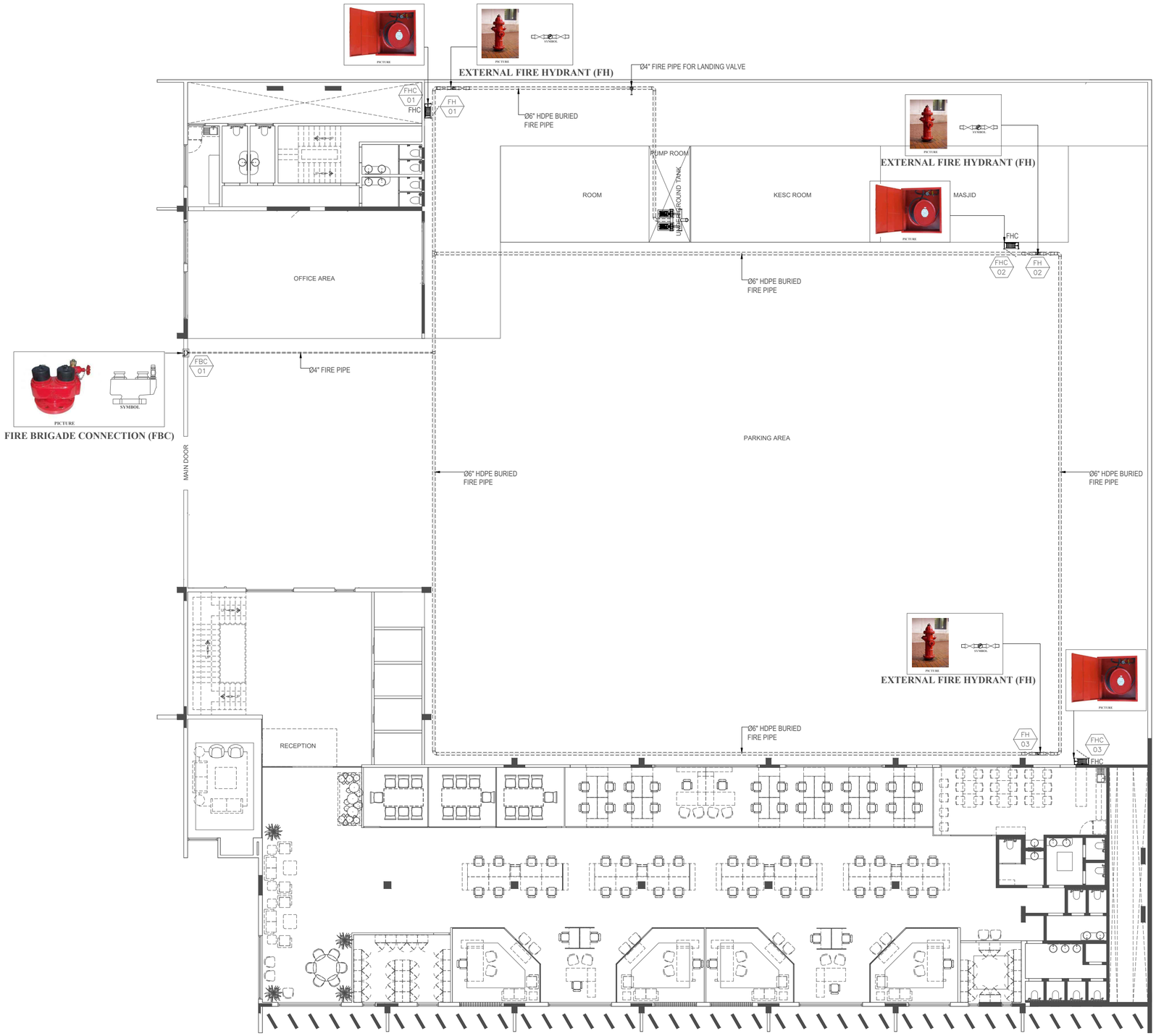
TITLE

FIRE RISER DIAGRAM

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-RD-02	SCALE: N.T.S	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

PROJECT:

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIREFIGHTING / HYDRANT SYSTEM IN STATE LIFE BUILDING NO. 9 DR. ZIAUDDIN AHMED ROAD, KARACHI.

CONSULTANT

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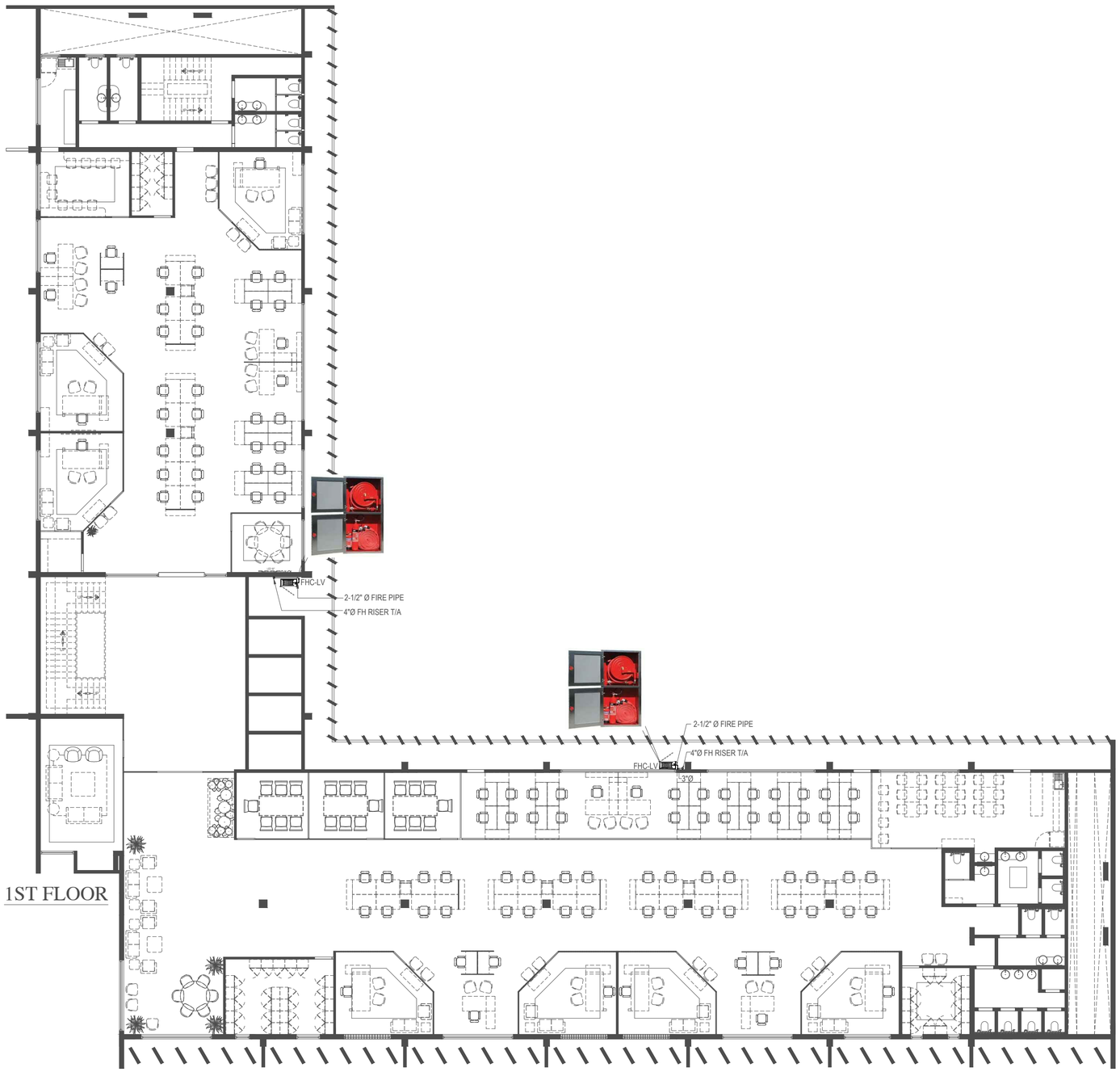
TITLE

GROUND FLOOR
FIRE FIGHTING LAYOUT

DESIGN BY: Name/Signiture	DRAWN BY:
Muhammad Imran	Muhammad Talha
CHECKED BY: Name/Signiture	APPROVED BY: Name/Sig.
Asghar Hussain	Saima Majeed

DRAWING NO.	SCALE:	JOB NO.
HA-ENG CON SLB-FF-GF-03	3/32" = 1'-0"	HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



1ST FLOOR

NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

PROJECT:

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIREFIGHTING / HYDRANT SYSTEM IN STATE LIFE BUILDING NO. 9 DR. ZIAUDDIN AHMED ROAD, KARACHI.

CONSULTANT

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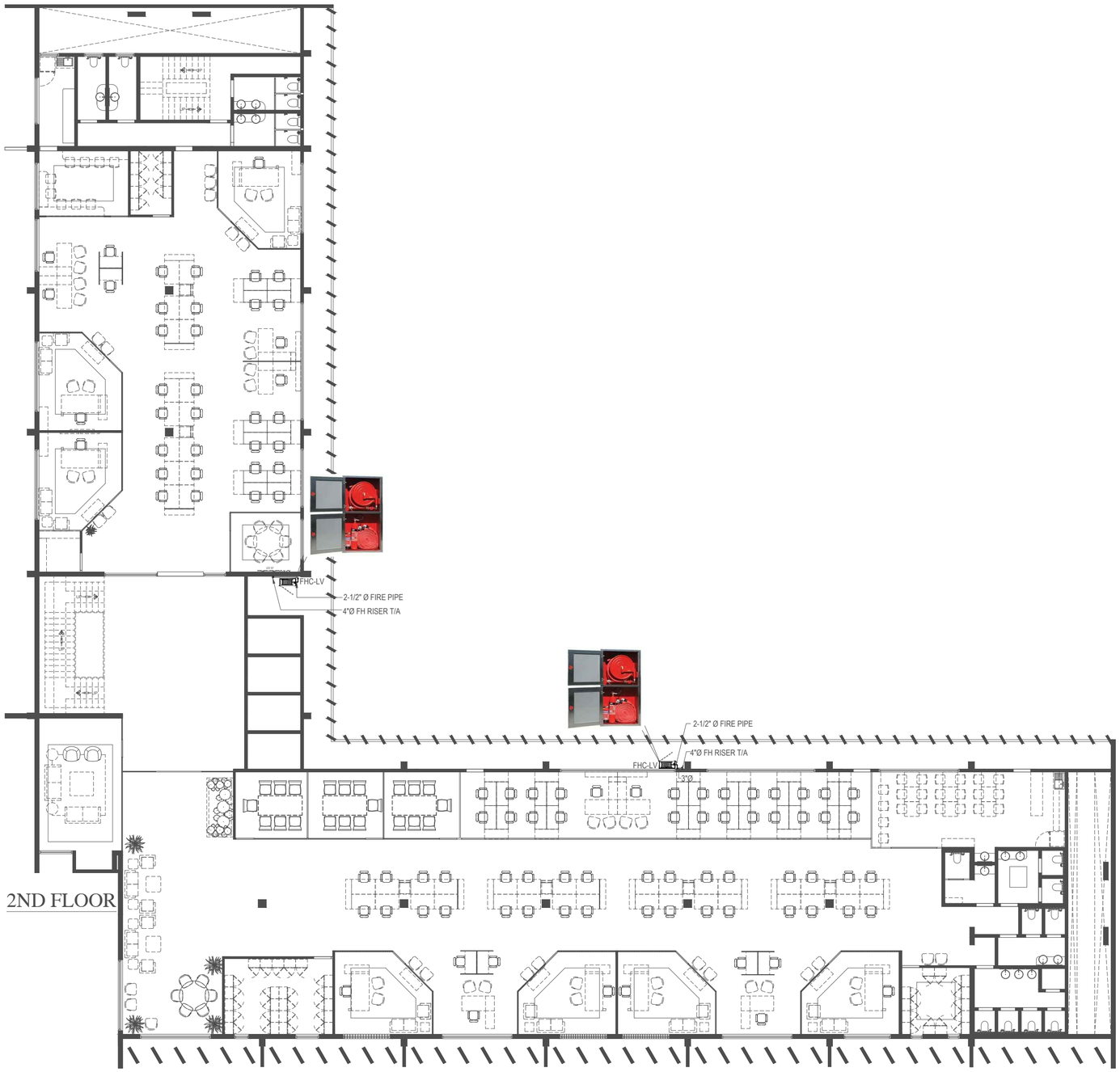
TITLE

FIRST FLOOR
FIRE FIGHTING LAYOUT

DESIGN BY: Name/Signiture	DRAWN BY:
Muhammad Imran	Muhammad Talha
CHECKED BY: Name/Signiture	APPROVED BY: Name/Sig.
Asghar Hussain	Saima Majeed

DRAWING NO.	SCALE:	JOB NO.
HA-ENG CON SLB-FF-1F-04	3/32" = 1'-0"	HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

PROJECT:

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIREFIGHTING / HYDRANT SYSTEM IN STATE LIFE BUILDING NO. 9 DR. ZIAUDDIN AHMED ROAD, KARACHI.

CONSULTANT

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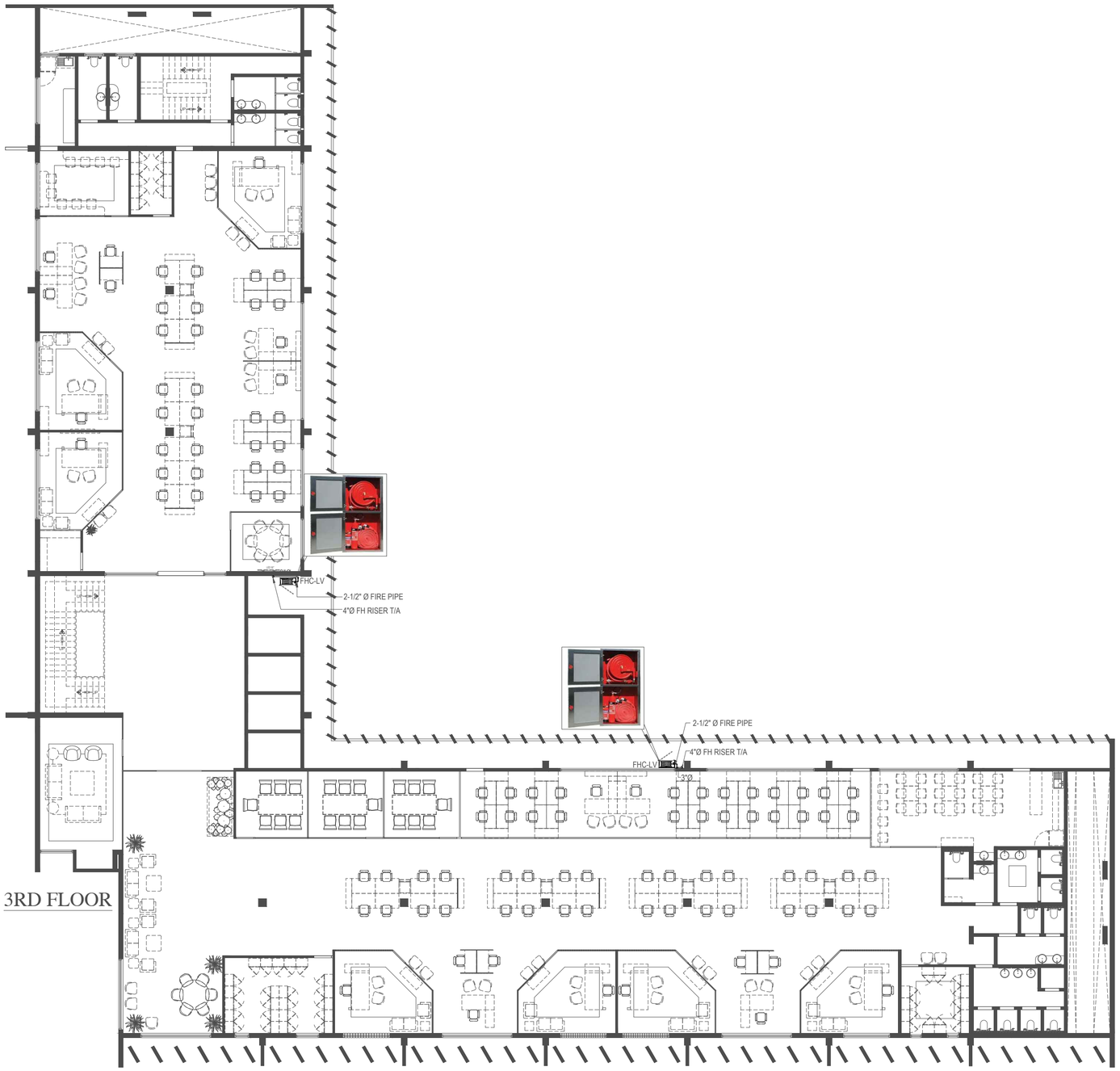
TITLE

SECOND FLOOR
FIRE FIGHTING LAYOUT

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-2F-05	SCALE: 3/32" = 1'-0"	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



3RD FLOOR

NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

PROJECT:

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FIREFIGHTING / HYDRANT SYSTEM IN STATE LIFE BUILDING NO. 9 DR. ZIAUDDIN AHMED ROAD, KARACHI.

CONSULTANT

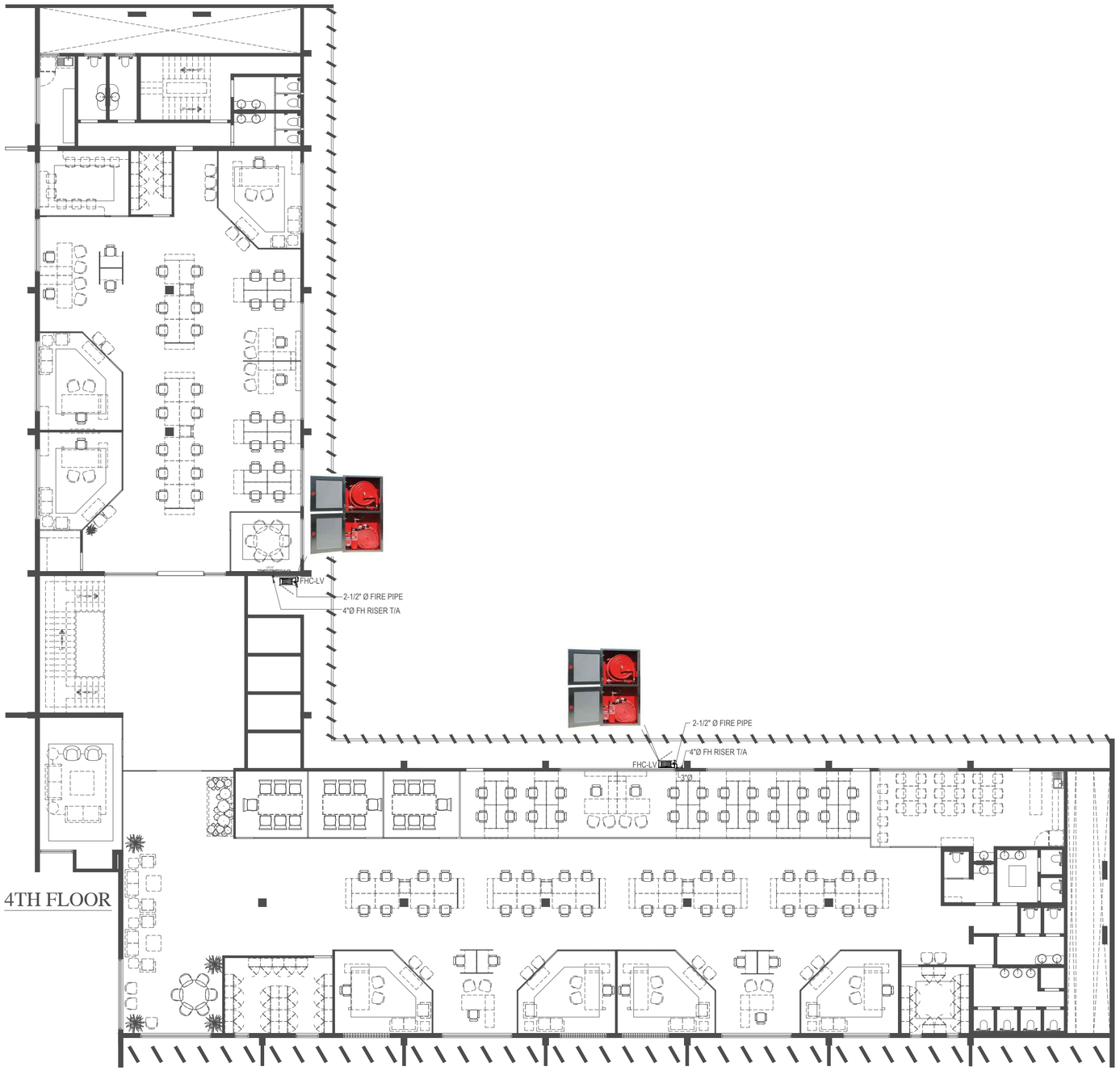
HA Eng Con International
Consulting Engineers and Planners.
Head Office: Suite # 606 6th Floor, Burj ul Minal,
Near Munawar Chowrangi, Block-11 Scheme # 36,
Gulistan-e-Jehar Karachi.
Phone # 021-34012148 - 021-34012149
E-Mail:- info@haengcon.com

TITLE

THIRD FLOOR
FIRE FIGHTING LAYOUT

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-3F-06	SCALE: 3/32" = 1'-0"	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



4TH FLOOR

NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

STATE LIFE
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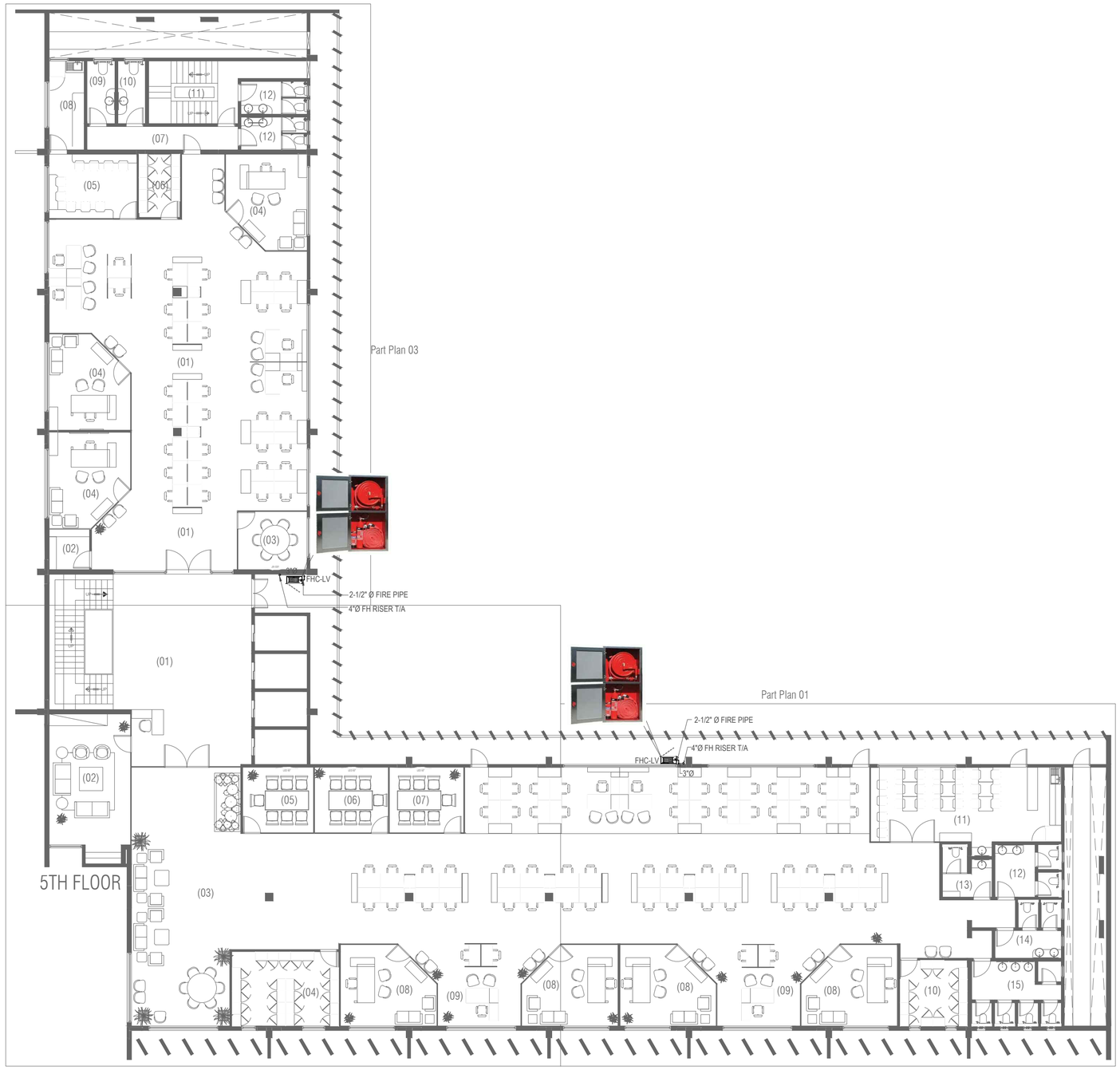
Phone # 021-34012148 - 021-34012149
E-Mail:- info@hengcon.com

TITLE

FOURTH FLOOR
FIRE FIGHTING LAYOUT

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-4F-07	SCALE: 3/32" = 1'-0"	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

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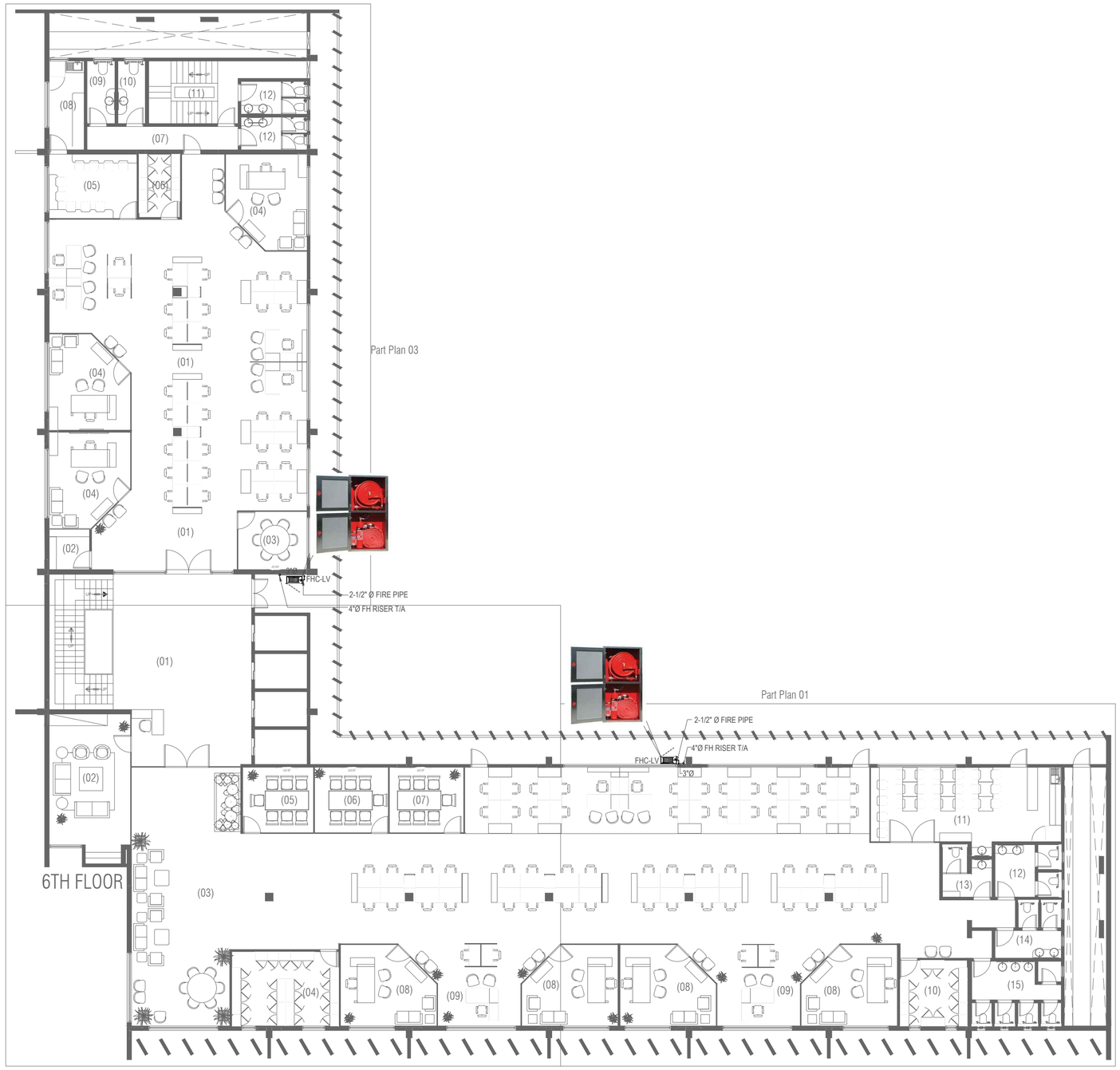
Phone # 021-34012148 - 021-34012149
E-Mail:- info@haengcon.com

TITLE

FIFTH FLOOR
FIRE FIGHTING LAYOUT

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-5F-08	SCALE: 3/32" = 1'-0"	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

STATE LIFE
INSURANCE CORPORATION OF PAKISTAN

PROJECT:

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CONSULTANT

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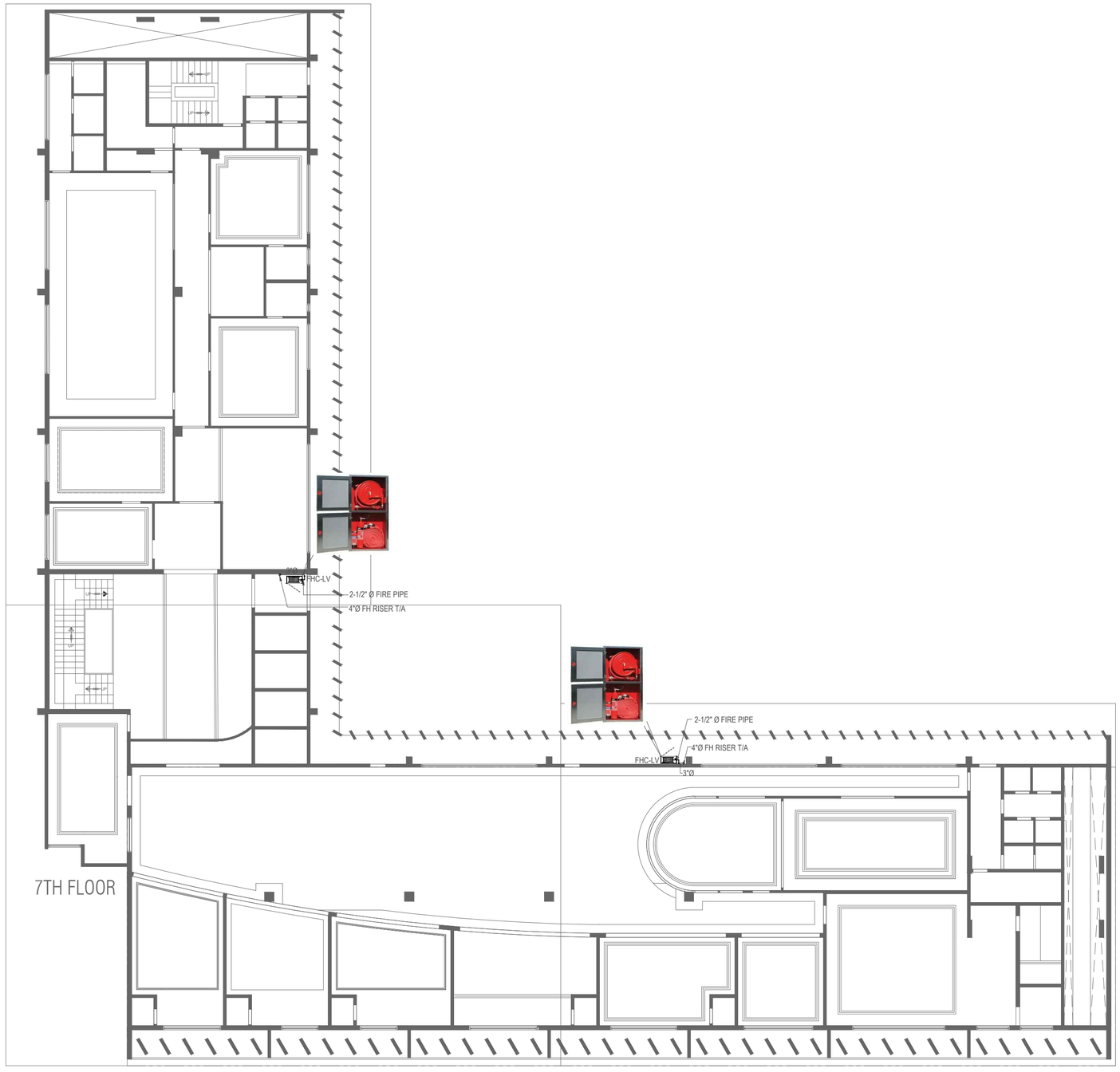
Phone # 021-34012148 - 021-34012149
E-Mail:- info@haengcon.com

TITLE

SIXTH FLOOR
FIRE FIGHTING LAYOUT

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-6F-09	SCALE: 3/32" = 1'-0"	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

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INSURANCE CORPORATION OF PAKISTAN

PROJECT:

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Phone # 021-34012148 - 021-34012149
E-Mail:- info@haengcon.com

TITLE

SEVENTH FLOOR
FIRE FIGHTING LAYOUT

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-7F-10	SCALE: 3/32" = 1'-0"	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00

NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

CLIENT

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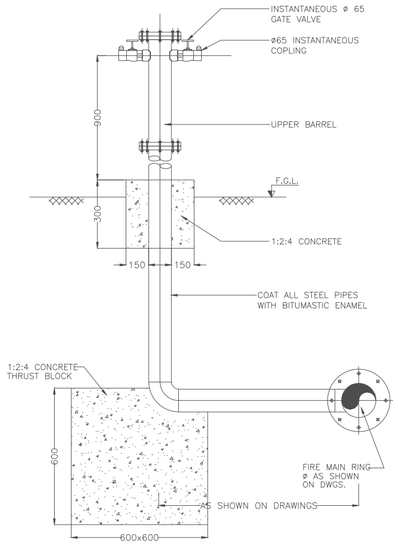
Phone # 021-34012148 - 021-34012149
E-Mail:- info@haengcon.com

TITLE

EIGHT FLOOR
FIRE FIGHTING LAYOUT

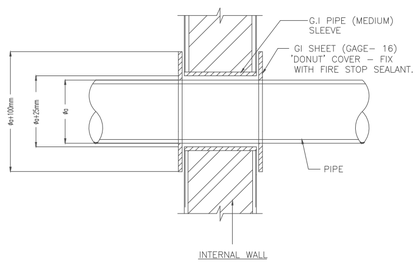
DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-8F-11	SCALE: 3/32" = 1'-0"	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00



TITLE

FIRE HYDRANT INSTALLATION DETAIL



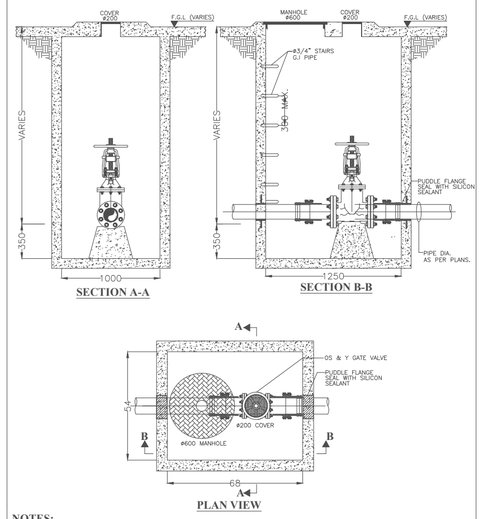
NOTES:–

1) THIS ARRANGEMENT TO BE USED FOR ABOVE GROUND INTERNAL WALLS ONLY.

2) IF GAP BETWEEN SLEEVE & PIPE IS MORE THEN 15mm , FILL ANNULAR SPACE WITH FIBREGLASS BLANKES.

TITLE

PIPE SLEEVE THRU INTERNAL WALL ABOVE GROUND

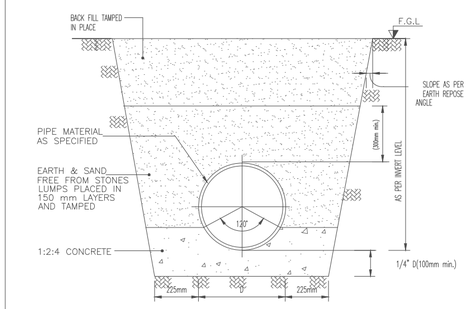


NOTES:

1.STRUCTURE DESIGN OF THE CHAMBER SHALL BE DONE BY STRUCTURAL CONSULTANT

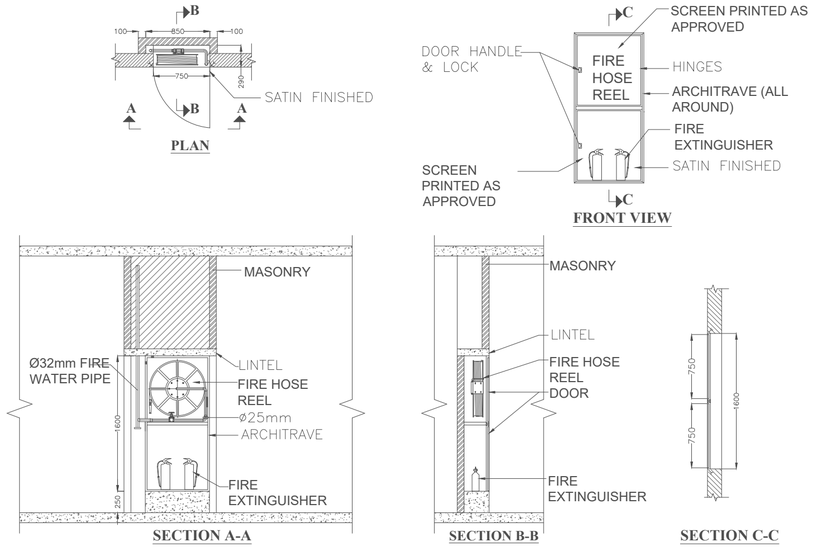
TITLE

OS & Y GATE VALVE CHAMBER DETAIL



TITLE

PIPE BEDDING DETAIL



TITLE

FIRE HOSE REEL & CABINET DOOR DETAIL FOR NICHE

NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

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PROJECT:

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CONSULTANT

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Gulistan–e–Johar Karachi.
Phone # 021–34012148 – 021–34012149
E–Mail:– info@haengcon.com

TITLE

STANDARD DETAILS

DESIGN BY: Name/Signiture Muhammad Imran	DRAWN BY: Muhammad Talha
CHECKED BY: Name/Signiture Asghar Hussain	APPROVED BY: Name/Sig. Saima Majeed

DRAWING NO. HA-ENG CON SLB-FF-SD-12	SCALE: N.T.S	JOB NO. HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00

FIRE PUMP SCHEDULE

TAG	SERVICE	LOCATION	TYPE	QTY.	PUMP DATA		MOTOR DATA		REMARKS
					FLOW (GPM)	TOTAL HEAD (FT. OF H_2O)	POWER (KW)	V-PH-HZ	
FIRE PUMP -01	FIRE FIGHTING	GROUND FLOOR PUMP ROOM	CENTRIFUGAL	1	500	380	25	400-3-50	DUTY - HORIZONTAL SPLIT TYPE

NO.	DATE	REVISIONS	REV.BY	CKD.BY
00	JUNE	ISSUED FOR TENDER	00	A.H

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Phone # 021-34012148 – 021-34012149
E-Mail:- info@haengcon.com

TITLE

EQUIPMENT SCHEDULE

DESIGN BY: Name/Signiture	DRAWN BY:
Muhammad Imran	Muhammad Talha
CHECKED BY: Name/Signiture	APPROVED BY: Name/Sig.
Asghar Hussain	Saima Majeed

DRAWING NO.	SCALE:	JOB NO.
HA-ENG CON SLB-FF-ES-13	N.T.S	HA-Engcon-01
	DATE: JUNE 2025	REV NO. 00