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Sindh Institute of Child Health and Neonatology (SICHN)
Government of Sindh

Bidding Documents

For

National Competitive Bidding

Pakistan

MEP & HVAC Work for Civil Hospital Mirpurkhas

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NIT No: SICHN/GOS/MEP/HVAC/Readv-MPK/25-26 **Dated 26-01-2026**

NOTICE INVITING TENDER

The Sindh Institute of Child Health and Neonatology (SICHN), Government of Sindh Karachi now invites e-bids through E-Pak Acquisition and Disposable System (EPADS) for the following works for fiscal year **2025-2026** are invited from the interested contractors / firms/ parties meeting the eligibility criteria / registered with Pakistan Engineering Council (PEC) in relevant category having valid renewal certificate 2025, limit of the category of following work for which they wish to participate valid CNIC, NTN certificate & professional tax challan, SRB as follows:

DETAILS OF WORK

Sr. No.	Name of work	PEC Category	Estimated Cost	Time allowed for completion	Code Specialization
1.	MEP & HVAC Work for Civil Hospital Mirpurkhas	C-4	**90.M**	05- Months	**EE11 (vi) general electrical work**

1. Eligibility Criteria:

i) Valid Registration with Pakistan Engineering Council (PEC) for the year 2025.
ii) The firm should have specialized codes mentioned above.
iii) Successful execution of HVAC & MEP Work for at least three (03) hospitals completed within the last five (5) years. The Performance Certificate must be attached.
iv) Successful completion of the HVAC & MEP Work for at least one (01) hospital area within the past three (3) years. The corresponding Performance Certificate must be attached.
v) Turnover not less than the bid cost for the last three financial years with Audit Report from ICAP Certified Audit Firm.
vi) Bio data of Engineering and Technical staff working with the firm along with attested CVs showing employment with the firm Electrical Engineers employment with the firm along with same reflected in PEC License.
vii) The contractor must have following Personnel Capabilities:

For Key Positions (Academic Qualifications):

a. At least 01 Electrical Engineer having B.E (Electrical) degree.

For Key Positions (Experience):

a. Worked in at least 2 or more similar projects
b. Must have experience of at least 5years.

viii) Financial Statement (Summary) and income return for the last 03 years
ix) The bid security in the form of Pay Order or Deposit at Call or Demand Draft issued by a scheduled bank in Pakistan
x) Undertaking on Legal Stamp Paper the Bidder is not blacklisted in any Procuring Agency
xi) Registration with Income Tax (FBR), Sindh Revenue Board (SRB) and copy of valid CNIC of proprietor(s) of the firm. The firm must be inactive tax payers list.

2. Method of Procurement (Single Stage–Two Envelope)

3. The Bids prepared in accordance with the instructions in the bidding documents must be submitted on EPADS and purchased by interested bidders on the submission of written application, to payment of Rs.5000/ Tender nonrefundable Fee that have to be deposited in Sindh Institute of Child Health and Neonatology (SICHN) Sindh Bank Account and Bank Paid Deposit Slip submit at First Floor,

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Plot no. 354 & 356 JM, Near People's Secretariat Chowrangi, Jamshed Quarters Karachi between 0900 to 1500 hours except Sunday, Saturday and Holidays from date of publication up to **10-02-2026 up to 10:00 a.m**. A complete set of bidding document containing detailed terms and conditions, can be viewed / downloaded from https://portalsindh.eprocure.gov.pk/#/.

4. The Bids must be submitted on EPADS on or before **Date of Opening up to 10:30 a.m.** and must be accompanied by a bid security of Two (2%) of estimated value of the project in favor of Sindh Institute of Child Health and Neonatology (SICHN) must reach before the deadline for the submission of e-bids, which will be opened on the same day **10-02-2026 at 11: 00 a.m** First Floor, Plot no. 354 & 356 JM, Near People's Secretariat Chowrangi, Jamshed Quarters Karachi.

5. The Validity Period of Bid is 90 days

6. The proposal shall be submitted through E-tendering portal under Technical and Financial/Commercial options on E-pad with all the supporting documentary evidence by or before the closing date and time.

7. Bidders are required to offer most competitive lowest price of their quoted items as no negotiations on quoted price are allowed under the rules.

8. During the technical evaluation, no amendments to Technical Proposal shall be permitted

9. In case of any difficulty prospective bidders may contact EPADS helpline 051-111-137-237 during working days/hours

EXECUTIVE DIRECTOR

(SICHN), GOVERNMENT OF SINDH

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EVALUATION CRITERIA

NOTE

Financial proposal must be submitted on company letter head duly signed and stamped. Bidder is required to type their offer in figure and as well as in words of the total amount else the offer would be rejected.

EVALUATION / QUALIFICATION

1.1 The procuring agency reserves the right to evaluate and compare the bids on itemized basis OR on the basis of a group of similar nature goods OR goods compatible with each other.
1.2 The following merit point system for weighing evaluation factors/criteria will be applied for technical proposals.
1.3 Bidders achieving minimum **70 marks** will be considered only for further process. Documentary evidence must be attached in support of each parameter.
1.4 **Any Bid not meeting the mandatory requirements of evaluation criteria will be disqualified / rejected straight away and will not be considered for further evaluation.**

S#	PARAMETERS / SUB-PARAMETERS	Total Marks
1	**Valid registration with PEC in category C-4**	**10**
2	Successful experience in the execution MEP & HVAC Work of at least 05 (five) different hospitals completed in last five years (03 Marks of each)	15
3	**Successful completion of the MEP & HVAC Work for at least two (02) hospital area within the past three (3) years. (05 Marks of each)**	**10**
4	Bio data of Engineering and Technical staff working with the firm along with attested CVs showing employment with the firm, Electrical Engineers employment with the firm along with same reflected in PEC License.	05
5	**Average Annual Turnover during last three (03) financial years Duly verified with Audit Report from ICAP Certified Audit Firm.**	**10**
5.1	85.00 (Million) and above	10
5.2	60.00 (Million) to below 85.00 (Million)	08
5.3	35.00 (Million) to below 60.00 (Million)	06
5.4	10.00 (Million) to below 35.00 (Million)	04
6	**Regional Electrical Contractor License**	**10**
6.1	Bidder possesses a valid Regional Electrical Contractor License	10

6.2	Bidder has applied for the Regional Electrical Contractor License (documents proof of application required)	05
7	At least 01 Electrical Engineer having B.E (Electrical) degree	10
8	**No. of Years in Business**	**10**
8.1	More than 20 Years of Experience	10
8.2	More than 15 Years of Experience	07
8.3	More than 10 Years of Experience	04
9	**Delivery Schedule at consignee's end for completion of Work**	**10**
9.1	Within 03 Months	10
9.2	Within 04 Months	07
9.3	Within 05 Months	04
10	**Free of Cost Extended Warranty (in accordance with the standard warranty period) at least for one year including services. (Bidder offering greater extended warranty period will get the full marks)**	**10**
TOTAL MARKS		**100**

Note: Qualifying Marks 70 out of 100.

Important Note for Bidders: The Bidder shall submit documentary evidence of past experience for works directly awarded to and completed by the Bidder. Experience gained through subcontracted works shall not be considered. Only the Bidder's own proven and completed projects will be accepted as valid experience.

Proposal Evaluation:

1. Technically qualified/successful bidder(s) shall be eligible for further process.
2. Bids not accompanied by the Bid Security of required amount and form shall be rejected.
3. Procuring Agency shall not be responsible for any erroneous calculation of taxes and all differences arising out shall be fully borne by the Successful Bidder.
4. For the purpose of comparison of bids quoted in different currencies, price shall be converted into Pakistani Rupees. The rate of exchange shall be the selling rate prevailing seven working days before the date of opening of the bids, as notified by the National Bank of Pakistan (NBP) / State Bank of Pakistan (SBP).

Contract Award	
ITB 29.1	Procuring Agency reserves the right to drop any item and increase or decrease the quantity of goods originally specified in Schedule of Requirements / Technical Specifications without any change in unit price and other terms & conditions.

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ITM 32.1	Successful Bidder and the Procuring Agency will sign the Contract Agreement on the stamp paper with stamp duties as per the article 22-A (Contract) of the schedule of Stamp Act 1899. The expenditure involved on the said contract agreement will be borne by the bidder.

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INVITATION
FOR BIDS

SICHN, KARACHI

INSTRUCTIONS
TO
BIDDERS

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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 Procuring agency as defined in the bidding data hereinafter called "the procuring agency" wishes to receive bids for the construction 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.

IB.2 Source of Funds

2.1 Procuring agency has received/allocated/] applied for loan/grant/ Federal/ Provincial/Local Government funds from the source(s) indicated in the bidding data in various currencies towards the cost of the project /scheme specified in the bidding data, and it is intended that part of the proceeds of this loan/grant/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 interested bidders who are eligible under provisions of Sindh Public Procurement Rules as mentioned below and the criteria given in the Notice Inviting Tender (NIT)/ Bidding Document.

Firms and individuals, national or international, may be allowed to bid for any project where international competitive bidding is feasible. Any conditions for participation shall be limited to those that are essential to ensure the bidder's capability to fulfill the contract in question.

(a) Bidders may be excluded if;

(i) as a matter of law or official regulations, commercial relations are prohibited with the bidder's country by the federal government in case of ICB, or

(ii) a firm is blacklisted/ debarred by the procuring agency and the matter has been reported to the Authority, subject to Rule 30 of Sindh Public Procurement Rules 2010.

(b) Government-owned enterprises or institutions may participate only if they can establish that they are;

(i) legally and financially autonomous, and

(ii) operate under commercial law.

Provided that where government-owned universities or research centers in the country are of a unique and exceptional nature, and their participation is critical to project implementation, they may be allowed to participate; and
Bidders shall include all those contractors who are registered or incorporated in Pakistan, irrespective of the nationality of their owners and professional staff, or

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(c) Bidders are:-

(i) pre-qualified with procuring agency for particular project/scheme;

(ii) registered with Pakistan Engineering Council in particular category and discipline,

(iii) registered with relevant tax authorities (income/sales tax, wherever applicable)

IB.4 One Bid per Bidder

4.1 Each bidder shall submit only one bid either by himself, or as a partner in a joint venture. A bidder who submits or participates in more than one bid (other than alternatives pursuant to Clause IB.16) will be disqualified.

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 agency 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 all information that may be necessary for preparing the bid and entering into a contract for construction of the 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 agency 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 agency, 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 (SSP RULE 21)

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.

a. Instructions to Bidders.
b. Bidding Data.
c. General Conditions of Contract, Part-I (GCC).
d. Special Conditions of Contract, Part-II (SCC)
e. Specifications.
f. Form of Bid and Appendices to Bid.
g. Bill of Quantities (Appendix-D to Bid).
h. Form of Bid Security.
i. Form of Contract Agreement.
j. Forms of Performance Security, Mobilization Advance Guarantee, Integrity

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Pact and Indenture bond for secured advance.

k. Drawings.

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 bidder's own risk. Pursuant to Clause IB.26, bids which are not substantially responsive to the requirements of the BD will be rejected.

IB.8 Clarification of Bidding Documents (SSP RULE 23(1)):

Any interested bidder requiring any clarification(s) in respect of the bidding documents may notify the procuring agency in writing at the procuring agency's address indicated in the Invitation for Bids/NIT. Procuring agency will respond to any request for clarification provided they are received at least five calendar days prior to the date of opening of bid.
Provided that any clarification in response to query by any bidder; shall be communicated to all parties who have obtained bidding documents.

IB.9 Addendum/Modification of Bidding Documents:

9.1 At any time prior to the deadline for submission of bids, the procuring agency may, for any reason, whether at his own initiative or in response to a clarification requested by a interested bidder, modify the bidding documents by issuing addendum.

9.2 Any addendum thus issued shall be part of the bidding documents pursuant to sub¬clauseIB 7.1 hereof and shall be communicated in writing to all bidders. Interested bidders shall acknowledge receipt of each addendum in writing to the procuring agency.

9.3 To afford bidders reasonable time in which to take an addendum into account inpreparing their bids, the procuring agency may extend the deadline for submission of bids in accordance with IB.20.

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 agency shall be in the language stipulated in the bidding data and Special Conditions of the 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) submit a written authorization on the letterhead of the bidding firm, authorizing the signatory of the bid to act for and on behalf of the bidder;

(b) update the information indicated and listed in the bidding data and previously submitted with the application 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;

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

(iii) Work commitments since prequalification;

(iv) Current litigation information; and

(v) Availability of critical equipment.

And

(c) furnish a technical proposal taking into account the various Appendices to Bidspecially the following:

Appendix-E to Bid	Proposed Construction 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 programmeetc;

11.2 Bids submitted by a joint venture of two (2) or more firms shall comply with the following requirements:

(a) one of the joint venture partners shall be nominated as being in charge; andthis authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the joint venture partners;

(b) the bid, and in case of a successful bid, the Form of Contract Agreement shall be signed by the authorized partner so as to be legally binding on all partners;

(c) the partner-in-charge shall always be duly authorized to deal with the procuring agency regarding all matters related with and/or incidental to the execution of works as per the terms and Conditions of Contract and in this regard to incur any and all liabilities, receive instructions, give binding undertakings and receive payments on behalf of the joint venture;

(d) all partners of the joint venture shall at all times and under all circumstances be liable jointly and severally for the execution of the contract in accordance with the contract terms and a statement to this effect shall be included in the authorization mentioned under Sub-Para (a) above as well as in the Form of Bid and in the Form of Contract Agreement (in case of a successful bid);

(e) a copy of the agreement entered into by the joint venture partners shall be submitted with the bid stating the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it and which persons will be directly responsible for due performance of the contract and can give valid receipts on behalf of the joint venture, the proportionate participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. No amendments / modifications whatsoever in the joint venture agreement shall be agreed to between the joint venture partners without prior written consent of the procuring agency;

(f) submission of an alternative Letter of Intent to execute a Joint Venture Agreement shall be mandatory.

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11.3 Bidders shall also submit 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 sub- clause IB 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 IB 1.1 hereof, based on the unit rates or prices submitted by the bidder or percentage quoted above or below on the rates of Composite Schedule of Rates (CSR), as the case may be.

12.2 The bidders shall fill in rates and prices for all items of the works described in the Bill of Quantities. Items against which no rate or price is entered by a bidder will not be paid for by the procuring agency when executed and shall be deemed to be covered by rates and prices for other items in the Bill of Quantities. In case of Composite Schedule of Rates, if the bidder fails to mention the percentage above or below, it shall be deemed to be at par with the rates of Composite Schedule of Rates.

12.3 The bid price submitted by the contractor shall include all rates and prices includingthe taxes. All duties, taxes and other levies payable by the contractor under the contract, or for any other cause during the currency of the execution of the work or otherwise specified in the contract as on the date seven days prior to the deadline for submission of bids.

Additional / reduced duties, taxes and levies due to subsequent additions or changes in legislation shall be reimbursed / deducted as per Sub-Clause 13.7 of the General Conditions of Contract Part-I.

12.4 The rates and prices quoted by the bidders are subject to adjustment during the performance of the contract in accordance with the provisions of Clause 13.7of GCC. The bidders shall furnish the prescribed information for the price adjustment formulae in Appendix-C to Bid, and shall submit with their bids such other supporting information as required under the said Clause. Adjustment in prices quoted by bidders shall be allowed as per Sub-Para 4(ii) of Section C of Instructions to bidders and bidding data.

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. A bidder expecting to incur expenditures in other currencies for inputs to the works supplied from outside the procuring agency's country (referred to as the "Foreign Currency Requirements") shall indicate the same in Appendix-B to Bid. The proportion of the bid price (excluding Provisional Sums) needed by him for the payment of such Foreign Currency Requirements either (i) entirely in the currency of the bidder's home country or, (ii) at the bidder's option, entirely in Pak rupees provided always that a bidder expecting to incur expenditures in a currency or currencies other than those stated in (i) and (ii) above for a portion of the foreign currency requirements, and wishing to be paid accordingly, shall indicate the respective portions in the bid.

13.2 The rates of exchange to be used by the bidder for currency conversion shall be the selling rates published and authorized by the State Bank of Pakistan prevailing on the date, 07 (seven) days prior to the deadline for submission of bids. For the purpose of payments, the exchange rates used in bid preparation shall apply for the duration of the contract.

IB.14 Bid Validity

14.1 Bids shall remain valid for the period stipulated in the bidding data from the date of opening of bid specified in clause IB.23.

14.2 In exceptional circumstances, prior to expiry of the original, the procuring agency may request the bidders to extend the period of validity for a specified additional period, which shall not be for more than one third of the original period of bid validity. The request and the responses thereto, shall be made in writing. A bidder may refuse the request without the forfeiture of the bid security. In case, a bidder agreed to the request, shall not be required or permitted to modify the bid, but will be required to extend the validity of the bid security for the period of the extension, and in compliance with Clause IB.15 in all respects.

IB.15 Bid Security

15.1 Each bidder shall furnish, as part of the bid, a bid security in the amount stipulated in the bidding data in Pak Rupees or an equivalent amount in a freely convertible currency.

15.2 The bid security shall be at the option of the bidder, in the form of deposit at call, Pay order or a bank guarantee issued by a Scheduled Bank in Pakistan or from a foreign bank duly counter guaranteed by a Scheduled Bank in Pakistan in favour of the procuring agency, which should commensurate with the bid validity period. The bank guarantee for bid security shall be acceptable in the manner as provided at Annexure BS-1

15.3 Any bid not accompanied by an acceptable bid security shall be rejected by the procuring agency as non-responsive.

15.4 Bid security shall be released to the unsuccessful bidders once the contract has been signed with the successful bidder or the validity period has expired.

15.5 The bid security of the successful bidder shall be returned when the bidder has furnished the required Performance Security and signed the Contract Agreement.

15.6 The bid security may be forfeited:

(a) if the bidder withdraws his bid except as provided in sub- clause IB 22.1;

(b) if the bidder does not accept the correction of his bid price pursuant to subclause IB 27.2 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 Alternate Proposals/Bids

16.1 Each bidder shall submit only one bid either by himself, or as a member of a joint venture, until and unless they have been requested or permitted for alternative bid, then he has to purchase separate bidding documents and alternate bid shall be treated as separate bid.

16.2 Alternate proposals are allowed only for procurement of works where technical complexity is involved and more than one designs or technical solutions are being offered. Two stage two envelope bidding procedure will be appropriate when alternate proposal is required.

16.3 Alternate bid(s) shall contain (a) relevant design calculations; (b) technical specifications; (c) proposed construction methodology; and (d) any other relevant details / conditions, provided that the total sum entered on the Form of Bid shall bethat which represents complete compliance with the bidding documents.

IB.17 Pre-Bid Meeting

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17.1 Procuring agency may, on his own motion or at the request of any bidder, hold a pre- bid meeting to clarify issues and to answer any questions on matters related to the bidding documents. The date, time and venue of pre-bid meeting, if convened, shall be communicated to all bidders. All bidders or their authorized representatives shall be invited to attend such a pre-bid meeting at their own expense.

17.2 The bidders are requested to submit questions, if any, in writing so as to reach the Procuring agency not later than seven (7) days before the proposed pre-bid meeting.

17.3 Minutes of the pre-bid meeting, including the text of the questions raised and the replies given, will be transmitted without delay to all bidders. Any modification of the bidding documents listed in sub- clause IB 7.1 hereof, which may become necessary as a result of the pre-bid meeting shall be made by the procuring agency exclusively through the issue of an Addendum pursuant to Clause IB.9 and not through the minutes of the pre-bid meeting.

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

IB.18 Format and Signing of Bid

18.1 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.

18.2 All appendices to bid are to be properly completed and signed.

18.3 Alteration is not to be made neither 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.

18.4 Each bidder shall prepare by filling out the forms without alterations and shall provide an original copy along with photocopies as per the requirement of the procuring agency specified in the bidding data. The original as well as copies of the document shall be clearly marked as "ORIGINAL" and 'COPY", as the case may be. If there is any discrepancy between original and copy (ies) then the original shall prevail.

18.5 The original and all copies of the bid shall be typed or written in indelible ink (in the case of copies, Photostats are also acceptable) and shall be signed by a person(s) duly authorized to sign on behalf of the bidder pursuant to sub-clause IB 11.1(a) hereof. All pages of the bid shall be initialed and stamped by the person(s) signing the bid.

18.6 The bid shall contain no alterations, omissions or additions, except to comply with instructions issued by the procuring agency, or as are necessary to correct errors made by the bidder. Such corrections shall be initialed by the person(s) signing the bid.

18.7 Bidders shall indicate in the space provided in the Form of Bid their full and properpostal 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.

18.8 Bidders should retain a copy of the bidding documents as their file copy.

D. SUBMISSION OF BIDS

IB.19 Sealing and Marking of Bids

19.1 Each bidder shall submit his bid as under:

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(a) ORIGINAL andCOPIES of the bid shall be separately sealed and put inseparate envelopes and marked as such.

(b) The envelopes containing the ORIGINAL and COPIES shall be put in one sealed envelope and addressed as given in sub - clause IB 19.2 hereof.

19.2 The inner and outer envelopes shall:

(a) be addressed to the procuring agency at the address provided in the bidding data;

(b) bear the name and identification number of the contract as defined in the bidding data; and

(c) provide a warning not to open before the time and date for bid opening, as specified in the bidding data.

19.3 In addition to the identification required in sub- clause IB 19.2 hereof, the inner envelope shall indicate the name and postal address of the bidder to enable the bid to be returned unopened in case it is declared "late" pursuant to Clause IB.21

19.4 If the outer envelope is not sealed and marked as above, the procuring agency will assume no responsibility for the misplacement or premature opening of the Bid.

IB.20 Deadline for Submission of Bids

20.1 (a) Bids must be received by the procuring agency at the address specified not later than the time and date stipulated in the bidding data,

(b) Bids with charges payable will not be accepted, nor will arrangements be undertaken to collect the bids from any delivery point other than that specified above. Bidders shall bear all expenses incurred in the preparation and delivery of bids. No claims shall be entertained for refund of such expenses,

(c) Where delivery of a bid is by mail and the bidder wishes to receive an acknowledgment of receipt of such bid, he shall make a request for such acknowledgment in a separate letter attached to but not included in the sealed bid package,

(d) Upon request, acknowledgment of receipt of bids will be provided to those making delivery in person or by messenger.

20.2 The Procuring Agency may, at its discretion, extend the deadline for submission of bids by issuing an amendment in accordance with IB 09. In such case, all rights and obligations of the procuring agency and the bidders shall remain the same as mentioned in the original deadline.

IB.21 Late Bids

(a) any bid received by the procuring agency after the deadline for submission of bids prescribed in to clause IB 20 shall be returned unopened to such bidder.

(b) delays in the mail, person in transit, or delivery of a bid to the wrong office shall not be accepted as an excuse for failure to deliver a bid at the proper place and time. It shall be the bidder's responsibility to submit the bid in time.

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IB.22 Modification, Substitution and Withdrawal of Bids

22.1 Any bidder may modify, substitute or withdraw his bid after bid submission provided that the modification, substitution or written notice of withdrawal is received by the procuring agency prior to the deadline for submission of bids.

22.2 The modification, substitution, or notice for withdrawal of any bid shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause IB.19 with the outer and inner envelopes additionally marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" as appropriate.

22.3 No bid may be modified by a bidder after the deadline for submission of bids except in accordance with to sub - clauses IB 22.1 and IB 27.2.

22.4 Withdrawal of a bid during the interval between the deadlines 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.23 Bid Opening

23.1 Procuring agency will open the bids, including withdrawals, substitution and modifications made pursuant to Clause IB.22, in the presence of bidders' representatives who choose to attend, at the time, date and location stipulated in the bidding data. The bidders or their representatives who are in attendance shall sign an attendance sheet.

23.2 Envelopes marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to clause IB.22 shall not be opened.

23.3 Procuring agency shall read aloud the name of the bidder, total bid price and price of any Alternate Proposal(s), if any, discounts, bid modifications, substitution and withdrawals, the presence or absence of bid security, and such other details as the procuring agency may consider appropriate, and total amount of each bid, and of any alternative bids if they have been requested or permitted, shall be read aloud and recorded when opened.

23.4 Procuring Agency shall prepare minutes of the bid opening, including the information disclosed to those present in accordance with the sub-clause IB.23.3.

IB.24 Process to be Confidential. (SPP Rule 53)

24.1 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 bid evaluation report in accordance with the requirements of Rule 45, which states that Procuring agencies shall announce the results of bid evaluation in the form of a report giving reasons for acceptance or rejection of bids. The report shall be hoisted on website of authority and that of procuring agency if it website exists and intimated to all bidders at least seven (7) days prior to the award of contract 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 agency'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 as per Rule 31; however mere fact of lodging a complaint shall not warrant suspension of the procurement process.

IB.25 Clarification of Bid (SPP Rule 43)

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25.1 To assist in the examination, evaluation and comparison of bids, the procuring agency may, at its discretion, ask any bidder for clarification of the 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 agency in the evaluation of the bids in accordance with clause IB 28.

IB.26 Examination of Bids and Determination of Responsiveness

26.1 Prior to the detailed evaluation of bids, the procuring agency will determine whether the bidder fulfills all codal requirements of eligibility criteria given in the tender notice such as registration with tax authorities, registration with PEC (where applicable), turnover statement, experience statement, and any other condition mentioned in the NIT and bidding document. If the bidder does not fulfill any of these conditions, it shall not be evaluated further.

26.2 Once found to be fulfilling the eligibility criteria, as mentioned in sub- clause 26.1, the bids of eligible bidders will be evaluated for technical responsiveness as per specification and criteria given in the bidding documents. Technical and financial evaluations may be carried out in accordance with single stage-single one envelope, single stage-two envelopes, two stage or two stage-two envelopes bidding procedures, depending on the selection procedure adopted by the procuring agency.

26.3 A bid will be considered technically responsive if it (i) has been properly signed; (ii) is accompanied by the required bid security; and (iii) 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 agency'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.

26.4 If a bid has major deviations to the commercial requirements and technical specifications will be considered technically non responsive. As a general rule, major deviations are those that if accepted, would not fulfill the purposes for which the bid is requested, or would prevent a fair comparison or affect the ranking of the bids that are compliant with the bidding documents.

(A). Major (material) Deviations include:-

(i) has been not properly signed;
(ii) is not accompanied by the bid security of required amount and manner;
(iii) stipulating price adjustment when fixed price bids were called for;
(iv) failing to respond to specifications;
(v) failing to comply with Mile-stones/Critical dates provided in Bidding Documents;
(vi) sub-contracting contrary to the Conditions of Contract specified in Bidding Documents;
(vii) refusing to bear important responsibilities and liabilities allocated in the Bidding Documents, such as performance guarantees and insurance coverage;
(viii) taking exception to critical provisions such as applicable law, taxes and duties and dispute resolution procedures;
(ix) a material deviation or reservation is one :

(a) which affect in any substantial way the scope, quality or performance of the works;
(b) adoption/rectification whereof would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

(B). Minor Deviations

Bids that offer deviations acceptable to the Procuring Agency and which can be assigned a monetary value may be considered substantially responsive at least as to the issue of fairness. This value would however be added as an adjustment for evaluation purposes only during the detailed evaluation process.

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

IB.27 Correction of Errors before Financial Evaluation

27.1 Bids determined to be substantially responsive will be checked by the procuring agency for any arithmetic errors. Errors will be corrected by the procuring agency as follows:

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

(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 agency 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.

27.2 The amount stated in the Form of Bid will be adjusted by the procuring agency in accordance with the above procedure for the correction of errors and with the concurrence of the bidders. The amount thus corrected 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 IB 15.6(b) hereof.

IB.28 Financial Evaluation and Comparison of Bids

28.1 The procuring agency will evaluate and compare only the Bids determined to be substantially responsive in accordance with clause IB 26.

28.2 In evaluating the Bids, the procuring agency 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 27;

(b) excluding provisional sums (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.

28.3 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.

28.4 If the bid of the successful bidder is seriously unbalanced in relation to the procuring agency's estimate of the cost of work to be performed under the contract, the procuring agency 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 agency may require that the amount of the Performance Security set forth in clause IB.32 be increased at the expense of the successful bidder to a level sufficient to protect the procuring agency against financial loss in the event of default of the successful bidder under the contract.

28.5 Bidders may be excluded if involved in "Corrupt and Fraudulent Practices" means either one or any combination of the practices given below SPP Rule2(q);

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(i) **"Coercive Practice"** means any impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence the actions of a party to achieve a wrongful gain or to cause a wrongful loss to another party;

(ii) **"Collusive Practice"** means any arrangement between two or more parties to the procurement process or contract execution, designed to achieve with or without the knowledge of the procuring agency to establish prices at artificial, noncompetitive levels for any wrongful gain;

(iii) **"Corrupt Practice"** means the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the acts of another party for wrongful gain;

(iv) **"Fraudulent Practice"** means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(v) **"Obstructive Practice"** means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract or deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements before investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or acts intended to materially impede the exercise of inspection and audit rights provided for under the Rules.

28.6 **Evaluation Report (SPP Rule 45)**

After the completion of evaluation process, as described in clauses IB 27 and IB 28, the procuring agency shall announce the results of bid evaluation in the form of report (available on the website of the authority) giving reasons for acceptance and rejection of bid. The report shall be hoisted on website of the authority and that of procuring agencies if its website exists and intimated to all bidders at least seven (7) days prior to the award of contract.

F. AWARD OF CONTRACT

IB.29 Award (SPP Rule 49)

29.1 Subject to clauses IB 30 and IB 34 and provision of the rule: The procuring agency shall 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, but not necessarily the lowest submitted price, within the original or extended period of bid validity. Provided that such bidder has been determined to be eligible in accordance with the provisions of clause IB 03 and qualify pursuant to sub- clause IB 29.2.

29.2 Procuring agency, at any stage of the bid evaluation, having credible reasons for or having prima facie evidence of any deficiency(ies) in contractor's capacities, may require the contractor to provide information concerning their professional, technical, financial, legal or managerial competence whether already pre-qualified or not for the said project.Provided, that such qualification shall only be laid down after recording reasons thereof, in writing. They shall form part of the records of that bid evaluation report.

IB.30 Procuring Agency's Right to reject all Bids or Annul/Cancellation the Bidding Process (SPP Rule 25)

Notwithstanding clause IB 29 and provision of the rule: (1) A procuring agency reserves may cancel the bidding process at any time prior to the acceptance of a bid or proposal; (2) The procuring agency shall incur no liability towards bidders solely by virtue of its invoking sub -rule (1); (3) Intimation of the cancellation of bidding process shall be given promptly to all bidders and bid security shall be returned along with such intimation; (4) The

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procuring agency shall, upon request by any of the bidders, communicate to such bidder, grounds for cancellation of the bidding process, but is not required to justify such grounds.

IB.31 Notification/Publication of the Award of Contract (SPP Rule 25).

31.1 Prior to expiry of the period of bid validity, including extension, prescribed by the procuring agency, the procuring agency shall notify the successful bidder in writing ("Letter of Acceptance") that his bid has been accepted. This letter shall mention the sum which the procuring agency will pay to 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").

31.2 No negotiation with the bidder having evaluated as lowest responsive or any other bidder shall be permitted, however, procuring agency may hold meetings to clarify any item in the bid evaluation report.

31.3 The notification of award and its acceptance by the bidder will constitute the formation of the contract, binding the procuring agency and the bidder till signing of the formal Contract Agreement.

31.4 Upon furnishing by the successful bidder of a Performance Security and signing of the contract, the procuring agency will promptly notify the name of the successful bidder to all bidders and return their bid securities accordingly.

31.5 Within seven days of the award of contract, procuring agency shall publish on the website of the Authority and on its own website, if such a website exists, the results of the bidding process, identify the bid through procurement identifying numbers, and the following information:

(1) Evaluation Report
(2) Form of Contract and letter of Award;
(3) Bill of Quantities or Schedule of Requirement.

31.6 Debriefing (SPP Rule 51).

(a) A bidder may ask the procuring agency for reasons for non acceptance of his bid and may request for a debriefing meeting and procuring agency shall give him the reasons for such non acceptance, either in writing or by holding a debriefing meeting with such a bidder.

(b) The requesting bidder shall bear all the costs of attending such a debriefing.

IB.32 Performance Security (SPP Rule 39)

32.1 The successful bidder shall furnish to the procuring agency a Performance Security in the form of pay order or demand draft or bank guarantee, and the amount stipulated in the bidding data and the Conditions of Contract within a period of 28 days after the receipt of Letter of Acceptance.

32.2 Failure of the successful bidder to comply with the requirements of Sub-clause IB.32.1 or clauses IB 33 or IB 35 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security.

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32.3 Validity of performance security shall extend at least ninety days beyond the date of completion of contract, or as mentioned in the bidding data to cover defects liability period or maintenance period subject to final acceptance by the procuring agency.

IB.33 Signing of Contract Agreement (SPP Rule 39)

33.1 Within 14 days from the date of furnishing of acceptable Performance Security under the Conditions of Contract, the procuring agency will send the successful bidder the Contract Agreement in the form provided in the bidding documents, incorporating all agreements between the parties.

33.2 The formal Agreement between the procuring agency and the successful bidder shall be executed within 14 days of the receipt of the Contract Agreement by the successful bidder from the procuring agency.

33.3 A procurement contract shall come into force when the procuring agency requires signscontract, the date on which the signatures of both the procuring agency and the successful bidder are affixed to the written contract. Such affixing of signatures shall take place within the time prescribed in the bidding documents.

Provided that the procuring agency may reduce the maximum time limit for signing of contract, as and when required, and shall be mentioned in the bidding documents.

33.4 Stamp Duty.

The formal Agreement between the Procuring Agency and the successful bidder shall be duly stamped at rate of — % of bid price (updated from time to time) stated in Letter of Acceptance.

IB.34 General Performance of the Bidders

Procuring agency may in case of consistent poor performance of the contractor and his failure to remedy the underperforming contract may take such action as may be deemed appropriate under the circumstances of the case including the rescinding the contract and/or black listing of such contractor and debarring him from participation in future bidding process.

IB.35 Integrity Pact (SPP Rule 89)

The bidder shall sign and stamp the Integrity Pact provided at Appendix-L to the bidding documents for all Provincial/Local Government procurement contracts exceeding Rupees ten million. Failure to provide such Integrity Pact shall make the bidder non-responsive.

IB.36 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.37 Arbitration (SPP Rule 34)

Any dispute that is not amicably resolved shall be finally settled, unless otherwise specified in the Contract, under the Arbitration Act 1940 updated from time to time and would be held anywhere in the Province of Sindh at the discretion of procuring agency.

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BIDDING
DATA

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NOTES ON BIDDING DATA

This Section is intended to assist the procuring agency in providing the specific information in relation to corresponding clauses in Instructions to Bidders and should be prepared to suit each individual contract.

The procuring agency should provide in the bidding data information and requirements specific to the circumstances of the procuring agency, 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:

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

(2) 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.

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BIDDING DATA

The information in this section is complementary to, amends or supplements the Provisions in the Instructions to Bidders. Whenever there is conflict, the provisions herein shall take precedence over those in the Instructions to Bidders.

Reference to Instructions to Bidders Clauses	Bidding Data
1.1	**Name and Address of the procuring agency:** Sindh Institute of Child Health and Neonatology (SICHN), Office First Floor, Plot no. 354 & 356 JM, Near People's Secretariat Chowrangi, Jamshed Quarters Karachi, Phone no. +9221-99333101-2-3 and E-mail: info@sichn.com.pk.
1.2	**Name of the Project and Summary of the works:** MEP & HVAC Work for Civil Hospital Mirpurkhas
2.1	**Name of the Borrower/Source of Financing/Funding Agency/Funding Source;** Regular Budget
2.1	**Amount and Type of Financing/Scheme Cost and Allocated Funds.** 90 million
8.1	**Time limit for clarification:** 5 working days, prior to last date of submission
10.1	**Bid language:** English
12.1	**Bid Price** The contract shall be based on unit rates and percentage basis where ever applicable.
13.1	Bidders to quote in entirely in Pak rupees.
14.1	**Period of Bid Validity:** Period of Bid Validity is 90 days. Extendable if required. Bid validity can be extended in accordance to updated Rule No: 38 of the Sindh Public Procurement Rules, 2010
15.1	**Bid Security:** The amount of Bid Security is 2.0% of the Total Estimated value of the Procurement.
16	**Alternate Proposal / Bids**

	Alternate Proposals / Bids are not invited.
18.4	**Number of bid to be completed and returned:** One Original Technical Proposal and One Original Financial Proposal
19.2 and 20.1	**The Bids must be submitted on EPADS on or before Date of Opening up to 10:30 a.m. and must be accompanied by a bid security of Two (2%) estimated value of the Procurement in favor of Sindh Institute of Child Health and Neonatology (SICHN) must reach before the deadline for the submission of e-bids, which will be opened on the same day 10-02-2026 at 11: 00 a.m First Floor, Plot no. 354 & 356 JM, Near People's Secretariat Chowrangi, Jamshed Quarters Karachi**
26.1	**Eligibility Criteria** Prior to the detailed evaluation of bids, the procuring agency will determine whether the bidder fulfills all codal requirement of mandatory criteria and Evaluation criteria given in the tender notice. If the bidder does not fulfill any of this condition, it shall not be evaluated further.
28.1	**Financial Evaluation** Evaluation of bids will be based on Lowest Evaluated Responsible Bidder (LERB) methodology.
32.1	**Standard form and amount of Performance Security acceptable to the procuring agency:** The Performance Security shall be of an amount equal to 10% of the Contract Price stated in the Letter of Acceptance. Such Security shall, be in the form of bank guarantee from any Scheduled Bank in Pakistan and in the format attached with these documents (PS-1).
32.3	**Stamp duty** 0.03% will be paid by successful bidder as stamp duty.

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FORM OF BID

AND
APPENDICES TO BID

SICHN, KARACHI

FORM OF BID

Bid Reference No. _____
(Name of Contract/Work)

To:

_____
_____
_____

1. Having examined the bidding documents including Instructions to Bidders, Bidding Data, and Conditions of Contract, Specifications, Drawings and Bill of Quantities and Addenda Nos. _____ for the execution of the above-named work, we/I, the undersigned, offer to execute and complete the work and remedy any defects therein in conformity with the Conditions of Contract, Specifications, Drawings, Bill of Quantities and Addenda for the sum of Rs. _____ (Rupees _____) or such other sum as may be ascertained in accordance with the said conditions.

2. We/I 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/I submit herewith a bid security in the amount of Rupees _____ (Rs._____) drawn in your favour or made payable to procuring agency and valid for a period of _____ days beginning from the date, bid is opened.

4. We/I 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/I agree to abide by this bid for the period of _____ days from the date fixed for opening 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.

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

9. We undertake, if our/my bid is accepted, to execute the Performance Security referred to in Clause 4.2 of Conditions of Contract for the due performance of the Contract.

10. We confirm, if our bid is accepted, that all partners of the joint venture shall be liable jointly and severally for the execution of the Contract and the composition or the constitutionof the joint venture shall not be altered without the prior consent of the procuring agency. (Please delete this in case of Bid form a single bidder)

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

Dated this _____ day of _____ 20 _____

Signature: _____

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_____
(Name of Bidder in Block Capitals)
(Seal)

Address: _____
_____
_____

Witness:

Signature: _____
Name: _____

Address: _____
_____
Occupation; _____

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SPECIAL STIPULATIONS
Clause
Conditions of Contract

1.	Engineer's Authority to issue Variation in emergency		
2.	Amount of Performance Security		
3.	Time for Furnishing Programme		
4.	Minimum amount of Third Party Insurance		
5.	Time for Commencement		
6.	Time for Completion		
7.	Amount of Liquidated Damages		DELETED
8.	Defects Liability Period		
9.	Percentage of Retention Money		
10.	Limit of Retention Money		
11.	Minimum amount of Interim Payment Certificates (Running Bills)		
12.	Time of Payment from delivery of Engineer's Interim Payment Certificate to the Employer.		
13.	Mobilization Advance		

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FOREIGN CURRENCY REQUIREMENTS

1. The bidder may indicate herein below his requirements of foreign currency (if any), with reference to various inputs to the works.

2. Foreign Currency Requirement as percentage of the bid price excluding Provisional Sums %.

3. Table of Exchange Rates

Unit of Currency	Equivalent in Pak. Rupees
Australian Dollar	----------
Euro	----------
Japanese Yen	----------
U.K. Pound	----------
U.S. Dollars	----------
----------	----------
----------	----------

DELETED

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PRICE ADJUSTMENT UNDER CLAUSE 70/13.8 OF CONDITIONS OF CONTRACT

A. Weight ages or coefficients are used for price adjustment.

The source of indices and the weight ages or coefficients for use in the adjustment formula under Clause 13.8 shall be as follows:

(To be filled by the procuring agency)

Cost Element	Description	Unit	Weight ages	Applicable index
1	2	3	4	5
(i)	Fixed Portion		0.350	
(ii)	Local Labor	Per day	0.050	Government of Pakistan (GOP) Federal Bureau of Statistics (FBS) Monthly Statistical Bulletin.
(iii)	Cement - in bags	M.Ton	0.018	Falcon Cement, Karachi.
(iv)	Reinforcing Steel	M.Ton	0.048	Pakistan Steel
(v)	High Speed Diesel (HSD)	Per liter	0.226	Pakistan State Oil.
(vi)	Bricks	1000 Nos	0.001	Government of Pakistan (GOP) Federal Bureau of Statistics (FBS) Monthly Statistical Bulletin.
(vii)	Bitumen	M.Ton	0.121	National Refinery Ltd, Karachi
	Total		1.000	

Notes:

1) Indices for "(ii)" to "(vii)" are taken from the Government of Pakistan Federal Bureau of Statistics, Monthly Statistical Bulletin. The base cost indices or prices shall be those applying 15 days prior to the latest day for submission of bids. Current indices or prices shall be those applying 28 days prior to the last day of the billing period.

2) Any fluctuation in the indices or prices of materials other than those given above shall not be subject to adjustment of the Contract Price.

3) Fixed portion shown here is for typical road project, procuring agency to determine the weight age of Fixed Portion considering only those cost elements having cost impact of seven (7) percent or more on his specific project.

DELETED

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B. When Escalation is allowed on the materials only.

Price adjustment on following items shall be allowed:

Cost Element	Description	Base price	Applicable index
1	2	3	4
(i)	Cement - in bags		Government of Pakistan (GOP) Federal Bureau of Statistics (FBS) Monthly Statistical Bulletin. " "
(ii)	Reinforcing Steel		" " "
(iii)	Bricks		" " "
(iv)	Bitumen		" " "
(v)	Wood (Composite item)		
	Total five items.		

DELETED

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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 Engineer 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 Engineer may fix as per the Contract (in case of item not mentioned in Bill of Quantities).

3. The rates and prices entered in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the contract include all costs of contractor's plant, labour, 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 14 days prior to deadline for submission of Bids in case of ICB/NCB respectively, shall be included in the rates and prices and the total bid price submitted by the bidder.

4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the contractor will have failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities and shall not be paid separately.

5. 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.

6. General directions and description of work and materials are not necessarily repeated nor summarised in the Bill of Quantities. References to the relevant sections of the bidding documents shall be made before entering prices against each item in the priced Bill of Quantities.

7. 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 13.5 of Part I, General Conditions of Contract.

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BILL OF QUANTITIES OF MIRPURKHAS

BOQ of Plumbing Works					
Sr No.	**D E S C R I P T I O N**	**UNIT**	**QTY**	**RATE (RS.)**	**AMOUNT**
	SECTION-K (PLUMBING WORKS)				
1	**Providing, fixing European type Wall Hung Water Closet with concealed flushing cistern, including all accessories and fittings, waste and traps, including seat and cover, all joints to service and drains plugging and screwing as necessary to the structure with non-shrink grout, complete in all respects**	**Nos.**	**18**		
2	**Providing, fixing Western Indian type Water Closet with concealed flushing cistern, including all accessories and fittings, waste and traps, including seat and cover, all joints to service and drains plugging and screwing as necessary to the structure with non-shrink grout, complete in all respects**	**Nos.**	**19**		
3	**Providing, fixing Counter Top/Half Pedestal Wash Basin with all accessories such as, basin mixer (Concealed / Basin mounted), tee stop cock with check nuts, CP flexible pipe, waste pipe, waste coupling, bracket set, etc. Complete including bottle trap, silicon sealant, all joint to service and drain, plugging and screwing as necessary to the structure, complete in all respects**				
4	**With Concealed Basin Mixer**	**Nos.**	**42**		
5	**Providing and fixing of best quality stainless steel sink (Make Zilver brand with Sonex pillar tap 2 way with water saving Kit fitting) with CI or WI brackets 150mm (6") built in wall, 40mm(1 1/2") rubber plug & , 40mm (1 1/2") C.P brass waste, 40 mm (1 1/2") dial malleable iron or C.P. brass trap, Bottle trap and unions. Make requisite holes in walls & floor for pipe connections & make good with approved material and conforming to the requirements of drawings, and to the entire satisfaction of the Project consultant.**	**Nos.**	**4**		
6	**Providing, fixing, testing & commissioning of pressurized Water Heater of following capacity, including inlet / outlet connections, pressure relief valves automatic air vents, gate valves etc. with all accessories, as per specifications, drawing & instruction of site engineer complete in all respect.**				
7	**50 Liters (For Kitchen Area Only)**	**No.**	**1**		
8	**Providing, fixing bathroom accessories including fixing with Rawal plug of approved quality complete in all respect.**				
9	**Toilet Paper Holder**	**Nos.**	**37**		
10	**Cloth hook (double)**	**Nos.**	**37**		
11	**Double Bibcock with Muslim shower**	**Nos.**	**37**		
12	**Bibcock**	**Nos.**	**37**		
13	**Soap Dispenser**	**Nos.**	**40**		
14	**COLD & HOT WATER SUPPLY SYSTEM** **Polypropylene Cold Water Piping for the Toilets and Irrigation system. Providing, Fixing, jointing, poly propylene pipe as per DIN 8077 / 8078 (PN 20) including specials fittings as per DIN 16962 (PN 25) such as socket, tees, elbows bends, reducer plug and union etc.), clamps, hanger collars, supports, supported on wall or buried in walls or suspended from roof slab as per specifications including color tagging, providing sleeve in wall, testing @ 150 psi, complete in all respect and as**				

	per instructions of site engineer, complete in all respects (Note: All Pipes and Fittings should be from same manufacturer)				
15	**25mm Ø**	**Rft.**	**1,800**		
16	**32mm Ø**	**Rft.**	**1,500**		
17	**40mm Ø**	**Rft.**	**1,250**		
18	**50mm Ø**	**Rft.**	**1,000**		
19	**63mm Ø**	**Rft.**	**750**		
20	**Providing, fixing of full way Gate/Ball valves of bronze trim for 125 psi together with all additional material required for a complete installation as described in the specification and as shown on drawings and as approved by the Engineer, complete in all respects**				
21	**1" (32mm) Ø**	**Nos.**	**132**		
22	**Providing, fixing in position UPVC pipes solvent joint type pipe embedded in floor and wall, including plugs, clamps, hanger collars, supports, specials (bend, tees, Y-tee etc.). Making requisite number of holes in walls and floors where required and making good the same as necessary to the structure with non-shrink grout, labeling and testing to 8'ft water height complete in all respect. (Note: All Pipes and Fittings should be from same manufacturer)**				
23	**2" Ø**	**Rft.**	**750**		
24	**3" Ø**	**Rft.**	**1,000**		
25	**4" Ø**	**Rft.**	**1,000**		
26	**Providing, Fixing uPVC Clean Out Plug with end cap for pipe roding, making good the same as necessary to the structure with rubber gasket, including hanger as per drawing and instructions of site engineer, complete in all respect.**				
27	**82mm Ø**	**Nos.**	**25**		
28	**Providing, Fixing and making Floor Drain / Floor Gully of approved design with S/S grating including requisite number of holes in wall plinth or floor for pipe connection and making good the same as necessary to the structure with filling sleeve opening with non-shrink grout, complete including gasket hanger and clamp as per drawing and instructions of site engineer, complete in all respects**				
29	**82/110mm Ø**	**Nos.**	**52**		
30	**Core-cutting of various diameters as necessary to the pipe/fixtures installation, complete in all respect as per instruction of site engineer, complete in all respects**	**Job.**	**1**		
31	**Providing, Fixing 225mm x 225mm uPVC Gully Trap with frame and cover including gully trap chambers as per drawing complete in all respect as per instructions of site engineer. 300mm x 300mm manhole chamber, Frame with cover, complete in all respects**	**Nos.**	**6**		
32	**R.C.C MANHOLE** **Provide and make manhole depth as per drawing including excavation, 3" thick 1:3:6 lean, R.C.C 6" thick bed in 1:1½ : 3, R.C.C 6" thick wall above bed, 1" thick plaster 1:4 ratio Internal & External sides of wall, Make chamfer in 1:1½ : 3 slop as per drawing, plaster with puddle in 1:4 ratio internally and 8" thick top slab, Plaster with puddle work av depth4'-6" (total 50 Sft inside Plaster). Main Hole cover Filling & fixing 24" x 24" cover C.C Smooth finish with the provision of Conduiting or other embedded items, removing excess material etc. complete in all respect and conforming to the requirements of drawings, and to the entire satisfaction of the Project consultant. (including steel as per drawing)**	**Nos.**	**4**		
TOTAL AMOUNT OF PLUMBING WORK					

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BOQ OF ELECTRICAL WORKS					
Sr No.	**D E S C R I P T I O N**	**UNIT**	**QTY**	**RATE (RS.)**	**AMOUNT**
01	**SECTION-A (GENERAL WIRING & POWER CABLES)**				
1.0	**Supply, Installation, tagging, testing, megerring & commissioning of following sizes of 450/750V grade copper wires/cables as per BS 6004, including 25mm dia PVC conduits with accessories, in wall, slab, trunking, cable tray, floor etc., including chases & filling, complete in all respects**				
1.1	**Circuit Wiring for Signage, Sound, fire alarm, CCTV, security, access control, IT systems with 2x1Cx1.5mm² + ECC 1x1Cx1.5mm² including wiring between equipment/fixture to equipment/fixture**	**Nos.**	**15**		
1.2	**Circuit Wiring for lighting and fans with 2x1Cx2.5mm² + ECC 1x1Cx2.5mm² including wiring between switch board to switch boards**	**Nos.**	**40**		
1.3	**Point Wiring for lighting and fans from switch board to first point with 1x1Cx1.5mm² for Phase + 1x1Cx2.5mm² as Common Neutral + 1x1Cx2.5mm² for Common Earth**	**Nos.**	**430**		
1.4	**Point to Point Wiring for lighting and fans with 1x1Cx1.5mm² for Phase + 1x1Cx2.5mm² as Common Neutral & 1x1Cx2.5mm² for Common Earth**	**Nos.**	**700**		
1.5	**Circuit Wiring for socket from distribution board (DB) to socket outlet with 2x1Cx4.0mm² + ECC 1x1Cx4.0mm²**	**Nos.**	**90**		
1.6	**Wiring for socket outlet to socket outlet with 2x1Cx4.0mm² + ECC 1x1Cx4.0mm²**	**Nos.**	**250**		
1.7	**Wiring for socket outlet to socket outlet within counter/table with 2x1Cx4.0mm² + ECC 1x1Cx4.0mm²**	**Nos.**	**150**		
1.8	**Circuit Wiring for wall mounted & cassette type split air-conditioning units from distribution board to installed indoor/outdoor units with 2x1Cx4.0mm² + ECC 1x1Cx4.0mm²**	**Nos.**	**40**		
1.9	**Circuit Wiring for wall mounted & cassette type split air-conditioning units from distribution board to installed indoor/outdoor units with 2x1Cx6.0mm² + ECC 1x1Cx6.0mm²**	**Nos.**	**52**		
1.10	**Circuit Wiring for Emergency & Exit Sign Lighting with 2x1Cx1.5mm² + ECC 1x1Cx1.5mm² including wiring between fixture to fixture**	**Rft.**	**1,000**		
1.11	**1x3Cx4.0mm² cu/pvc/pvc flexible cables for Generator/ATS Controls**	**Rft.**	**200**		
1.12	**Supply, Installation, tagging, dressing, testing, megerring & commissioning of following sizes 600/1000V grade copper cables as per BS 6346, including appropriate size of PVC/uPVC conduits, RCC pipes and accessories, run in wall, floor, slab, surface, cable tray, trunking, laid direct or underground etc., as per drawings, complete in all respects (Quantities & Cable Sizes Subject to Available Cables & Routes as per Site Conditions)**				
1.13	**1x4Cx400mm² cu/pvc/pvc + ECC 4x1Cx70mm² cu/pvc cables**	**Rft.**	**275**		
1.14	**1x4Cx300mm² cu/pvc/pvc + ECC 3x1Cx70mm² cu/pvc cables**	**Rft.**	**275**		
1.15	**1x4Cx240mm² cu/pvc/pvc + ECC 2x1Cx70mm² cu/pvc cables**	**Rft.**	**250**		

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1.16	1x4Cx150mm² cu/pvc/pvc + ECC 1x1Cx70mm² cu/pvc cables	Rft.	150		
1.17	1x4Cx120mm² cu/pvc/pvc + ECC 1x1Cx70mm² cu/pvc cables	Rft.	400		
1.18	1x4Cx95mm² cu/pvc/pvc + ECC 1x1Cx50mm² cu/pvc cables	Rft.	150		
1.19	1x4Cx70mm² cu/pvc/pvc + ECC 1x1Cx35mm² cu/pvc cables	Rft.	350		
1.20	1x4Cx50mm² cu/pvc/pvc + ECC 1x1Cx25mm² cu/pvc cables	Rft.	250		
1.21	1x4Cx35mm² cu/pvc/pvc + ECC 1x1Cx16mm² cu/pvc cables	Rft.	25		
1.22	1x4Cx25mm² cu/pvc/pvc + ECC 1x1Cx16mm² cu/pvc cables	Rft.	1		Rate Only
1.23	1x4Cx16mm² cu/pvc/pvc + ECC 1x1Cx16mm² cu/pvc cables	Rft.	1		Rate Only
1.24	1x4Cx10mm² cu/pvc/pvc + ECC 1x1Cx10mm² cu/pvc cables	Rft.	1		Rate Only
1.25	2x1Cx10mm² cu/pvc/pvc + ECC 1x1Cx10mm² cu/pvc cables	Rft.	100		
1.26	2x1Cx06mm² cu/pvc/pvc + ECC 1x1Cx06mm² cu/pvc cables	Rft.	1		Rate Only
	SECTION-A (Carried Forward To Summary)				
02	SECTION-B (DISTRIBUTION BOARDS)				
2.0	Supply, Installation, tagging, dressing, testing, load balancing & commissioning of following distribution boards as per drawings, specifications, load schedule and Consultant Instructions, complete in all respects (Short Circuit Ratings to IEC 947-2, Icu/Ics at 415V)				
2.1	MDB + ATS + MOR	No.	1		
2.2	DB - G (Ground Floor)	No.	1		
2.3	DB-AC-G (Ground Floor)	No.	1		
2.4	DB - 1 (First Floor)	No.	1		
2.5	DB-AC-1 (First Floor)	No.	1		
2.6	DB - 2 (Second Floor)	No.	1		
2.7	DB-AC-2 (Second Floor)	No.	1		
2.8	DB - 3 (Third Floor)	No.	1		
2.9	DB-AC-3 (Third Floor)	No.	1		
2.10	DB - R (Roof Floor)	No.	1		
2.11	DB-AC-R (Roof)	No.	1		
2.12	DB - C (UPS Power) All Floors	No.	1		
2.13	DB - OT (Minor OT Power) Ground Floor	No.	1		
2.14	DB - ER (X-ray Power) Ground Floor	No.	1		
2.15	MS Powder Coated Weather Proof TP Box (18 SWG) with 4Pole 630 MCCB Adjustable (ET) with Neutral Bar, dust protected, vermin proof housing coated with approved color, including all accessories, complete in all respect.	No.	1		

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2.16	Supply, installation, testing and commissioning of generator sync panel comprising of draw out type breakers, floor standing, IP-66, including modules having with 3x250KVA gen set with all breakers, safeties, etcetera, complete in all respects. Universal Type (Type tested)	No.	1		
	SECTION-B (Carried Forward To Summary)				
03	SECTION-C(LIGHTING FIXTURES)				
3.0	Supply, installation, connecting, testing & commissioning of light fixtures complete with all supports, fixing arrangements and accessories, including supply and installation of 1x3Cx1.5mm² flexible cables 300/500V grade copper cables according to BS 6500 and connectors for connections etc., complete in all respects as per Consultant/Architect instructions and approvals (False-ceiling mounted fixtures shall be compatible with and fit exactly into the false-ceiling, mounting frame to be included in cost)				
3.1	Recessed Type Adjustable/Fixed LED Spot (12/15/15 Watts) 3000K/4000K with Built-in Driver	Nos.	18		
3.2	Recessed Type Fixed LED Downlight (26/30 Watts) 3000K/4000K with Built-in Driver	Nos.	600		
3.3	Recessed Type Fixed LED Downlight (20/24 Watts) 3000K/4000K with Built-in Driver	Nos.	18		
3.4	Recessed/Surface/Hanging Type Continuous Linear LED Light (30 Watts Per Meter) in different sizes and shapes 3000K/4000K with Extruded Aluminum Profile (Anodized), High Impact Acrylic Frosted PMMA Diffuser with Integrated Electronic Driver, Hanging & Fixing Accessories suitable	Rft.	225		
3.5	LED Flexible Strip light including driver for indoor & outdoor use 3000K/4000K	Rft.	500		
3.6	LED Wall Mounted Picture/Mirror Light 3000K/4000K	Nos.	18		
3.7	2x2 LED Panel	Nos.	300		
3.8	24"x24" Recessed/Surface Type Ceiling Fans with Remote Color (White/Grey Color)	Nos.	250		
3.9	12"x12" Recessed Ceiling Exhaust Fan (180 CFM Minimum) with Flexible Pipes, Core Cuttings, End Covers & Vents	Nos.	37		
3.10	Customized Round Decorative Small & Large Diameter Type LED Ceiling Suspended/Ceiling Mounted/Hanging Light 40 Watts 3000K/4000K	Nos.	6		
3.11	Butterfly (Round) type Recessed/surface type emergency light 02 Watts 6500K with minimum 03 hours built-in battery backup including all fixing and hanging accessories (UL/TUV/LPCB Certified)	Nos.	70		
3.12	Recessed/surface type Exit Sign light Upto 04 Watts 6500K with minimum 03 hours built-in battery backup including all fixing and hanging accessories (UL/TUV/LPCB Certified)	Nos.	12		
3.13	Ceiling Suspended Insect Killer with 2x10watts lamps Dimensions (440x105x296)	Nos.	20		
	SECTION-C (Carried Forward To Summary)				
04	SECTION-D (SWITCHES & SOCKETS)				

4.0	**Supply, Installation, connections, testing & commissioning of following wiring accessories including GI back boxes, complete in all respects. (Make: Clipsal - Vivace Series) White Color**				
4.1	**1Gang-1Way Switch**	**Nos.**	**3**		
4.2	**2Gang-1Way Switch**	**Nos.**	**40**		
4.3	**3Gang-1Way Switch**	**Nos.**	**30**		
4.4	**4Gang-1Way Switch**	**Nos.**	**20**		
4.5	**5/6Gang-1Way Switch**	**Nos.**	**35**		
4.6	**International Switched Socket Outlet**	**Nos.**	**475**		
4.7	**Single Port TV Socket Outlets with IO's**	**Nos.**	**12**		
4.8	**Single Port Face Plate with CAT-6 RJ-45 IO's**	**Nos.**	**12**		
4.9	**Dual Port Face Plate with CAT-6 RJ-45 IO's**	**Nos.**	**50**		
4.10	**63A 4P Wall Mounted Industrial Sockets & Plugs**	**Nos.**	**4**		
	SECTION-D (Carried Forward To Summary)				
05	**SECTION-E (VOICE, CCTV, WI-FI, ACCESS CONTROL, CATV & DATA COMMUNICATION SYSTEMS)**				
5.0	**Supply, Installation, terminations, testing, fluke testing, proper permanent tagging at both ends and commissioning following items/communication system, different colors for voice and data cables shall be used, including 25mm dia PVC conduits, complete in all respects**				
5.1	**CAT-6, UTP (un-shielded twisted pair) cables from JB/Rack to each outlet/equipment**	**Rft.**	**16,500**		
5.2	**24-port CAT-6 patch panels loaded/equipped with RJ-45 I/Os for systems with rear cable organizer, cable manager including all labeling and all mounting accessories, complete in all respects**	**Nos.**	**12**		
5.3	**42U Floor Standing Rack (Imported) Communication Rack suitable for installation of servers, switches, cctv, sound, security, PABX and others related equipment etc., complete with solid side panels perforated front and back hinged panels as required with accessories, including back boards, frame, vertical and horizontal cable managements, labels, label holders, cable guide, lockable glass doors of sufficient sizes to accommodate patch panels, active networking equipment, built-in automatic fans, 02 Nos. UK/Universal 6xOutlets defending thunder module PDU, minimum 36.5" depth, 24" width, 73.5" height, complete in all respects (Size: 800X1000)**	**No.**	**1**		
5.4	**18U Wall Mounted Rack (Imported) Communication Rack suitable for installation of switches, cctv, sound, security, PABX and others related equipment etc., complete with solid side panels perforated front and back hinged panels as required with accessories, including back boards, frame, vertical and horizontal cable managements, labels, label holders, cable guide, lockable glass doors of sufficient sizes to accommodate patch panels, active networking equipment, built-in automatic fans, 01 No. UK/Universal 9xOutlets defending thunder module PDU, complete in all respects (Size: 800X1000)**	**Nos.**	**4**		
5.5	**1 Meter Long Factory Certified Patch Cords**	**Nos.**	**50**		
5.6	**2 Meter Long Factory Certified Patch Cords**	**Nos.**	**50**		
5.7	**3 Meter Long Factory Certified Patch Cords**	**Nos.**	**50**		
5.8	**Telephone Junction Box (TJB) made with 18 SWG sheet steel housing, powder coated paint of approved color, consisting of 2x10 pair tag blocks, including all interconnecting jumper wiring and termination, complete in all respects**	**Nos.**	**4**		

5.9	**TV Junction Box (TVJB) having 1x8 Line Tab modules with 2x4 ways splitter in powder coated sheet steel housing surface/recessed type**	**No.**	**1**		
5.10	**Wiring of Co-axial cable RG-6 for LCD/TV, including all accessories, terminations etc.**	**Rft.**	**500**		
5.11	**Ceiling Mounted POE Based Wi-Fi -6 Router Designed for CMDN with combination of OFDMA, MU-MIMO and BSS coloring technology, using 1024-QAM modulation, upto 11 Gbps with mounting kits, power, CAT-6 point in 20/25 mm dia PVC Galco Make Conduit. Complete in all respects with operational readiness**	**Nos.**	**17**		
5.12	**Indoor IDF Rack** **- 1 No. x 2 fiber ports + 8 copper POE+ ports (unmanaged) Ethernet switch** **- Wall/Surface mounted 19" indoor IDF rack with lockable door including DC Power Supply** **- Copper Cat 6 RJ 45 & fiber optic patch panel including patch cords, cable management and cable dressing**	**No.**	**1**		
	SECTION-E **(Carried Forward To Summary)**				
06	**SECTION-F** **(ACTIVE GREEN EARTHING SYSTEM FOR ELECTRICAL & IT SYSTEMS)**				
6.0	**Supply, Installation, testing and commissioning following items for complete Earthing system for grounding of other systems including all material, boring, labor, tools, transportation, accessories etc., complete in all respects with detailed test reports, as per consultant instructions(Including Electrical, IT & Generator Earthing)**				
6.1	**Active green earth using 38 mm dia copper pipe filled with soil conditioning material including 6" dia, 11' deep boring and back filled chemical to enhance conductivity, complete with termination clamps, Copper to stranded bare Cu conductor thermo weld & 12" dia heavy duty tin plated round cover, complete in all respects**	**Nos.**	**12**		
6.2	**Earth Connecting Point (ECP) or equipotential bar made with 4x300mm wide, 75mm high and 05mm thick tin plated copper, ECP shall be enclosed in appropriate size of powder coated metal enclosure with front accessible cover, complete in all respects**	**Nos.**	**6**		
6.3	**1x1Cx35mm² cu/pvc ECC (Green/Yellow)**	**Rft.**	**200**		
6.4	**1x1Cx25mm² cu/pvc ECC (Green/Yellow)**	**Rft.**	**200**		
	SECTION-F **(Carried Forward To Summary)**				
07	**SECTION-G** **(ADDRESSABLE FIRE ALARM SYSTEM)**				
7.0	**Supply, installation, testing and commissioning of Intelligent Addressable Fire Alarm System including all accessories, with Isolator Base after every 18 devices for loop continuation in case of fault in any device, complete in all respects**				
7.1	**Intelligent Addressable Fire Alarm Control Panel of 1-loop Expendable up to 2-loops having minimum 256 devices per loop with self powered with built-in 12V batteries for 24 Hrs. backup with charging unit in recessed type metal enclosure, programmed, upto 6 intelligent modules, built-in GSM module, self printing function, integration with others/third party systems, complete in all respects.**	**No.**	**1**		

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7.2	**Fire Alarm Repeater Panel along with termination of all Control/Signal cables, panel to have all loops marked in distinguishable colors with individual LED's. Acknowledge and reset function shall be present in repeater panel made with recessed type metal enclosure and suitable for the system, complete in all respects.**	**No.**	**1**		**Rate Only**
7.3	**Addressable Heat/Multi/Gas Detectors incorporating a pulsing LED located in labyrinth with in the housing of the detector with back boxes, mounting/fixing accessories, adjustable sensing between 0-90 seconds, built in short circuit isolators on both inputs.**	**Nos.**	**120**		
7.4	**Addressable Break Glass Type Manual Call Point (MCP) with Polycarbonate Cover, metal back box, built in short circuit isolator and built in microprocessor to ensure a response time of max 1 second, indication LED, flashed after pressing the button to acknowledge the activation and a key operation facility for testing purposes**	**Nos.**	**12**		
7.5	**Addressable Indoor Loop Powered electronic Sounder with Flasher, metal back box, minimum sound output 100 dB at 1 meter with frequencies for variety of sounds, loop wired and loop signaled, built in short circuit isolator**	**Nos.**	**12**		
7.6	**Addressable Outdoor Loop Powered electronic Sounder (IP-Rated) with Flasher, metal back box, minimum sound output 100 dB at 1 meter with frequencies for variety of sounds, loop wired and loop signaled, built in short circuit isolator**	**Nos.**	**2**		
7.7	**Addressable Input/output Module (2 Input/2 Output) with Isolator for integration with Public Address, CCTV, Ventilation, Power & Fire Fighting Systems, including control wiring as per requirements including all accessories**	**No.**	**1**		**Rate Only**
7.8	**Wiring for fire alarm system with 1x2Cx1.5mm² PVC/PVC insulated, shielded, 30 minutes fire rated cable including pvc conduit and accessories, complete in all respects (Red Color required on Entire Piping Length & Accessories as per Consultant instructions)**	**Rft.**	**1,500**		
	SECTION-G (Carried Forward To Summary)				
08	**SECTION-H (MISCELLANEOUS WORK)**				
8.1	**Conduiting Only: Supply, Installation of 25mm dia pvc conduits including laying of Owner Provided Wiring, complete with all respects**	**Rft.**	**500**		
8.2	**Wiring for sound system with 1x2Cx1.0mm² PVC flexible cable including pvc conduit and accessories, complete in all respects**	**Rft.**	**1,000**		
8.3	**Supply, installation, laying following sizes of pvc conduits and GI sheet metal tray with cover (18 SWG) with minimum three coats of enamel paint & anti-corrosive primer treatment on GI, galvanized fixing accessories with all bends, tee, elbow, jointing plates, nuts, bolts washers, gas kit in all edges of tray and cover, including floor, wall cuttings, excavation of trenches, back filling with basic civil repair etc. for conduits & cable trays installation, complete in all respect, as per consultant instructions**				
8.4	**2" x 8" Cable Tray with Cover**	**Rft.**	**200**		
8.5	**2" x 12" Cable Tray with Cover**	**Rft.**	**200**		
8.6	**Providing and Construction of Manhole Size 3'-0" x 3'-0" x 4'-0" deep, 6"thick, concrete 1:2:4 ratio with 3' round/square heavy duty cast iron cover, 100% water proof with all required materials, accessories, complete in all respects.**	**Nos.**	**6**		
8.7	**Providing and Construction of Manhole Size 2'-0" x 2'-0" x 3'-0" deep, 6"thick, concrete 1:2:4 ratio with 2' round/square heavy duty cast iron cover, 100% water proof with all required materials, accessories, complete in all respects.**	**Nos.**	**6**		

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8.8	**Coordinated Shop Drawings, Entire Projects Testing & Commissioning Reports, As-Built Drawings 03 Sets of Hard Copies & Electronic Editable Copies in CDs (Final Bill NOT Entertained without the Asbuilt Drawings, Documents & Testing Reports)**	**Job.**	**1**		
8.9	**Personal Protective Equipment (PPE): Mandatory PPE are safety helmet, safety gloves, safety goggles, safety shoes, dust mask where there is dust, ear plugs during high noise activities like grinding etc.**				
	SECTION-H (Carried Forward To Summary)				

SUMMARY OF COST ELECTRICAL WORKS

Sr. No	D E S C R I P T I O N	AMOUNT (Rs.)
01	**SECTION-A (GENERAL WIRING & POWER CABLES)**	
02	**SECTION-B (DISTRIBUTION BOARDS)**	
03	**SECTION-C (LIGHTING FIXTURES)**	
04	**SECTION-D (SWITCHES & SOCKETS)**	
05	**SECTION-E (VOICE, CCTV, WI-FI, ACCESS CONTROL, CATV & DATA COMMUNICATION SYSTEMS)**	
06	**SECTION-F (ACTIVE GREEN EARTHING SYSTEM FOR ELECTRICAL & IT SYSTEMS)**	
07	**SECTION-G (ADDRESSABLE FIRE ALARM SYSTEM)**	
08	**SECTION-H (MISCELLANEOUS WORK)**	
Grand Total Cost (MEP Works)		

BOQ HVAC WORKS

Sr No.	D E S C R I P T I O N	UNIT	QTY	RATE (RS.)	AMOUNT
	SECTION-J (SPLIT AIR-CONDITIONING WORKS)				

1	Installation, testing & commissioning of owner supplied following Split Air Conditioning Units (indoor & outdoor units), complete in all respects)				
2	Inverter Type Wall Mounted/Ceiling Convertible Split Air-Conditioning Indoor Unit & Outdoor Unit (1.0TR/1.5TR/2.0/2.5/3.0/4.0TR)	No	92		
3	Inverter Cassette Type Split Air-Conditioning Indoor Unit & Outdoor Unit (1.5TR/2.0TR/2.5TR/3.0TR/4.0TR/4.5TR)	No	1		Rate Only
4	Inverter Floor Standing Type Split Air-Conditioning Indoor Unit & Outdoor Unit (2.0TR/2.5TR/4.0TR)	No	1		Rate Only
5	Supply, installation, testing and commissioning of Refrigerant Copper Pipping, liquid & gas in 21Guage complete with accessories, expanded rubber foam insulation, tapping and glass wool insulation in all piping lengths, complete in all respect including chiseling and filling works **Note: Sizes and quantities maybe vary as per Equipment Selections**				
6	Copper Pipes 1/4" (Muller USA - 21 SWG)	Rft.	1,250		
7	Copper Pipes 1/2" (Muller USA - 21 SWG)	Rft.	1,250		
8	Copper Pipes 3/8" (Muller USA - 21 SWG)	Rft.	1,000		
9	Copper Pipes 5/8" (Muller USA - 21 SWG)	Rft.	1,000		
10	Supply, installation and testing of following uPVC schedule 40 pipe with expanded rubber foam insulation, with grey tapping in all piping lengths and accessories etc., including cutting and filling of wall, floor etc. for drain pipe, complete in all respects as per consultant instructions				
11	3/4" dia uPVC pipe	Rft.	1,000		
12	1" dia uPVC pipe	Rft.	1,000		
13	Supply, installation of 3" dia UPVC Sleeves, D-Class for refrigerant piping internal, external sides & roof top, along with UPVC fittings such as tees, elbows, unions, reducers, sockets, Teflon tape for jointing, hangers, supports, Complete in all respects	Rft.	500		
14	Supply, installation, termination, testing & commissioning of following size of copper wires and cables in standard color as per BS 6004 for indoor to outdoor units in 25mm dia PVC conduits with all accessories as per (BS-6099), cutting and filling of wall, floor etc. for drain pipe, complete in all respect, as per consultant instructions and approval				
15	5x1Cx4.0mm² cu/pvc cables	Rft.	4,500		
16	5x1Cx6.0mm² cu/pvc cables	Rft.	1		Rate Only
17	7x1Cx4.0mm² cu/pvc cables	Rft.	1		Rate Only
18	1x5Cx2.5mm² cu/pvc/pvc flexible for control	Rft.	1		Rate Only

19	Supply & installation of supports, MS brackets (1½"x1½"x06mm) link with angle iron, red oxide premier and enamel paint as approved by Architect/Consultant, all fixing hardware to be galvanized, complete in all respects	No	92		
20	Supply & installation of 15"x15" square or 18" dia round diffussers for exhaust system in white powder coating in glass/matt finish as approved by Architect/Consultant, all fixing hardware to be galvanized, complete in all respects	No	38		
21	Supply & installation of 6" dia PVC round pipes with all accessories, felxible pipes, hangers, supports, as approved by Consultant, all fixing hardware to be galvanized, complete in all respects	Rft.	800		
22	Supply, installation, testing and commisioning of cabinet type exhaust fans (minimum 500CFM) including all hanging and fixing accessories, duct jointers, sound linears, filters, etc, complete in all respects.	No	11		
23	Supply, installation, testing and commisioning of ducted type treated fresh air fans, fans (minimum 800CFM) including all GI Ducting (22SWG), insulation, hanging and fixing accessories, duct jointers, sound linears, filters, etc, complete in all respects.	No	11		
24	Final Testings, Gas Balancing of Entire Project, including air measurements, electrical data of equipment, all required reports shall be witnessed by Client Representative, complete in all respects for successful handing and taking over of the Project	No	92		
TOTAL AMOUNT OF HVAC WORK					

NOTE:

1)The Contractors Are Responsible for Visiting The Site And Determining The Existing Condition And State For Themselves Before Submitting The Tender

2) The Contractor shall be responsible for the supply, procurement and delivery of all the material and shifting of the equipment to their respective location, installation, testing, commissioning of the systems in all respects.

3) The quoted cost should include all overheads, profits, income tax and all other Taxes which are applicable, import duty (if any), insurance, packing, unpacking, transportation charges etc.

4) The work at site shall be executed in accordance with the approved shop drawings which will be prepared by the Contractor.

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5) The work at site shall be executed in accordance with the approved shop drawings which will be prepared by the Contractor within 1 week after award of works and Manufacturers drawings, Contract Specifications etc

7) The contractor will provide Operation & Maintenance Instructions to Clients Representatives

8) The Owner reserves the right to delete any item before award of works. The cost of such items shall be reduced.

9)In case a bidder offers an 'or equivalent' brand/equipment/Items in BoQ, it shall be clearly stated in their technical bid, and all requisite data/documentation for the qualification/evaluation of said brand/equipment/Items shall be provided in the technical bid in accordance with the requirements outlined in the bidding documents.

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SINDH INSTITUTE OF CHILD HEALTH & NEONATOLOGY
MEP & HVAC FOR CIVIL HOSPITAL MIRPUR KHAS, SINDH
SUMMARY OF COST BILL OF QUANTITIES

Sr. No	D E S C R I P T I O N	AMOUNT (Rs.)
1	**PLUMBING WORKS**	
2	**ELECTRICAL WORKS**	
3	**HVAC WORKS**	
	TOTAL COST	

1. Bidder need to submit TDS sheets along with the item samples which will be supplied by them.
2. Financial Proposal will be submitted as per mentioned above format, if any bidder fails to provide on same format with same sequence as specified in BoQ will be considered as rejected.
3. The bidder offering the lowest Grand total Amount in the BoQ summary will be awarded the contract, and evaluation will be based on the Grand total Amount Summary of the BoQ required for MEP & HVAC Work required for Civil Hospital Mirpurkhas.
4. In case of any incomplete bids (missing rates), the bid may be considered invalid or as per discretion of client.
5. Bids to be submitted with offer letter on company letterhead by contractor.
6. Contractor will provide a list of items clearly mentioning brand and origin of material along with its purchase price.
7. If a bidder participates in a tender through a Joint Venture, the bid security must be paid from the Joint Venture's account.
8. The Awarded bidder must secure and maintain insurance for all labor involved in the project. In the event of any incidents, the successful bidder will be responsible for all associated expenses, including medical costs and compensation claims. Proof of insurance must be submitted prior to the commencement of work.

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LIST OF OWNERS FURNISHED MATERIALS

1 Supply of Material

Owner shall supply following materials free of cost at site. It shall be responsibility of the Contractor to store/lift/shift these materials to respective places of installation.

1. Supply & Installation of Generator & UPS
2. Supply of Split Air-Conditioning Units with Platform & Protection Grills
3. Supply & Installation of Wi-Fi, IT Equipment, Fire Optics, Backbones, PABX & Telephone Sets
4. Supply & Installation of Geysers, Pumps & Overhead Tanks with Platforms
5. K-Electric/WAPDA Meters, Signage, K-Electric/WAPDA Issues/Matters/Load Sanctioned Loads/PMT
6. Supply & Installation of Overhead/Underground Tanks, Automations, Walk Through Gates, Solar Systems & SSGC/LPG Systems, DI & RO Plants, LED Screens.

Notes:

There will be no deduction of cost of above Owner Furnished Materials from Contractor's Bills. Contractor shall submit day-to-day inventory of above materials consumed in the works.

All necessary materials, other than mentioned herein above, are to be arranged by the Contractor at his Own Cost.

A minimum 10 - - - 15 calendar days' notice from the Contractor to the Owner shall be required with respect to supply of any above item(s).

Consultant/Client/Architect holds the right to discard or add any items in OFM & Contractor Scope of Work.
Any type of additional items/cost variation shall be borne by Client & Contractor. Contractor shall responsible to obtain the prior written approval from Client of additional items, additional quantities, cost variations. Consultant shall not responsible for any payments and approval matters.

LIST OF APPROVED MANUFACTURERS & SUPPLIERS (MEP WORKS)

01	LV Distribution Boards	Hussain & Co. (03331710204) Unique Engineering (03028248781) A to Zee Switchgear (03122705145) Karimi Electro Mechanical (03002602627) ICONIC Professionals (03008283461) United Switchgears (03213896091) Power Engineers (03362618801) Universal Engineering (03002342395) Unicorn Electrical (03333419363)
02	MV & LV Circuit Breakers & Components	ABB (Europe/France) Preferred/Schneider (Europe/France)
03	Wires & Cables (HT/LT/ELV/FRC) (All types solid and flexible cables)	Pakistan Cables (03332114869)
04	LED Lighting Fixtures & Emergency Exist Sign Lights	Philips-Signify (03018444326)/Coarts Lighting (03002375904) Future Technologies (03332373939)
05	Switches & Sockets	Schneider Electric- France/Vietnam (03082228967) MK/Legrand (03462759190)
06	PVC/UPVC Pipes & Cable Containment (Conduits, Flexible & Accessories)	Galco/Jeddah Polymer/Civic/Dadex/Adamjee/Pak Arab
07	Cable Trays/Ladders & Trunking	3D Engineering (03242309132)/Ezzi Eng. (03336897767) Power Engineers (03362618801)/Prime Engineering (03242676027) Unitech (03332164255)/A to Zee Switchgear (03122705145)

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08	GI Back Boxes/Floor Outlets Boxes & Pull Boxes	ICONIC Professionals (03008283461)/Clipsal by Davis 3D Engineering (03242309132)/Power Engineers (03362618801) Unitech (03332164255)/Ezzi Engineering (03336897767)
09	Cable Lugs/Connectors/Accessories/ Cable Labeling/Tagging & Lineup Terminals	Cambre (Italy)/Hellermanntyton (UK)/Hawke International/3M Kleman-Turkey/T Bloc-Turkey/CAMSCO/Yaslee (Taiwan)
10	Earthing & Lightning Protection	AA Enterprises (03442777201)/ICONIC Professionals (03008283461) Prime Engineering (03242676027)/Vital Engineering (03009292966)
11	Voice/Data/CCTV/Fiber Optic/Communication Cables/Systems & Multimedia Boxes	Corning (03002429091)/H3C (Switches/Routers/Fire wall) Junon (GPON Multimedia Boxes)/Toten (Cabinets/Racks) CISCO/ASUS/UNIFI/Fortinet/Grandstream
12	MA TV Equipment	Schneider/WISI/Pak Security & Safety Systems
13	Coaxial Cables	Pakistan Cables/SchneiderAmphanol (USA)/Pony/WISI
14	Ceiling Fans/Wall/Exhaust & Ventilation Fans Treated/Non Treated Fresh Air/Exhaust Fans	Pak Fans/Royal Fans/Millat Fans/Voldam/BVN ICONIC Professionals/AAE
15	Load Break/Changeover/ Selector Switches & Isolators	Socomec (France)/Lovato (Italian)/Himel (China) Gave (Spain)/ABB (Spain)/Westinghouse (Malaysia)
16	Busbars & Supports	Imported & Tinned Coated Copper
17	Current Transformer (CT's)	Hobut-UK/EFEN-Hungry/Germany/Sezgin-Turkey Fico/Lovato/Entes/Frer/Siba/Himel (China)
18	Digital Smart Energy Meter (Single/Double Source)	Klemsan-Turkey/Westinghouse (Malaysia)/Lovato (Italy)
19	Energy Analyzer	Klemsan-Turkey/Lumel-Poland/Westinghouse (Malaysia) Delixi (China)
20	Digital Ampere/Volts Meters	Autonics/Emzed F&G/Togami/Entes/Westinghouse (Malaysia) Revalco (Italy)/Legrand (France)/Schneider (Europe)/Lovato (Italy)
21	PFI Capacitator/Relays/Timers/EVR/Auxiliaries	Finder/Samwha/Emirel/Schneider/Nias/Autnics/Nias/Westinghouse
22	Surge Arrestors/Protectors	Westinghouse (Malaysia)/ABB/Schneider/Dehn/Furse
23	PABX & IP Intercom Systems	Panasonic/Siemens/Hyundai Telecom/ITC/Secure Vision ICONIC Professionals/Mega Plus/MA Technologies
24	Fire Resistant Cable (FRC)	Belden/Pyrismian/Cavicel/Draka/Oran (Turkey)/Shield (UK) Naffco (03322211861) Secure Vision (03073345294) Solution Clouds (03212554234)/MA Technologies (03332350566) Mega Plus (03462759190)/Pak Security & Safety Systems
25	Fire Alarm Systems	Gent/Esser by Honeywell/TRIGA - Powered Honeywell (03322211861)/Secure Vision (03073345294)/MA Technologies Mega Plus (03462759190)/ICONIC Professionals (03008283461)
26	Sound/Public Address/HDMI/VGA/USB	Extron/QED/LibertyPure Link/Black

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	Copper/Firekas/Cavicel & ELV Equipment Cables/Devices/Splitters	Secure Vision (03073345294)/MA Technologies Clipsal (03018201906)
27	Public Address & Sound Equipment	TOA/Panasonic/Bosch/Honeywell/Optimus/JBL/Universal Secure Vision (03073345294)/Inter-M (Korea) MA Technologies/Pak Security & Safety Systems (0213456818)
AV/Sound Systems		Extron/Eaton/Clipsal Pakistan (Pvt.) Ltd. (03018201906)
28	CCTV Equipment	Axis/Honeywell/IDIS/Dahua/Hikvision/Panasonic/Tiandy (China) Secure Vision (03073345294)/MA Technologies (03332350566) Mega Plus (03462759190)/ ICONIC Professionals (03008283461)
29	Access Control & Time Management System	Virdi/Rosslare/Apollo/Identiv/Makim/Hikision/Idteck (Korea) Secure Vision/MA Technologies/Mega Plus/Pak Security/ICONIC
30	Conduits Sealing Gum	Zahabiya Chemical Industries
31	Refrigerant Copper piping	Tier – 1 Muller – USA 21SWG – Crescent Corporation Tier – 2 Trox (Korea)/STC (Korea) 21SWG
32	Closed Cell Rubber Foam Insulation	Aeroflex – USA/Thailand – Crescent Corporation/Durkeflex
33	Grey Tape	ABRO - USA – Crescent Corporation/Fakhri Brothers/Shabbir
34	Angle Iron Frame	Locally Make (Prime Quality) as Approved by Consultant
35	Teflon Tape	Imported
36	PPE/PPRC/PPRCT/PP/CPVC/UPVC Pipes/Fittings/ Valves/Gully Traps/Clean Outs	Dadex/Kalde/GF Hakan Turkey/Kitz/Hepworth/George Fishcer Aqua Therm Germany/Cosmoplast UAE/Maxi Flow/Nibco/Gala Kenndey/Econosto/Hattersly/Watts/Scon/Duyar/Firat/Hydroseal
37	Plumbing Flexible Pipe Connectors	Tozen/Kingsun/Watts/Duct Made
38	Floor Drains Cover with SS Hinged Type	Zurn/Alphine/Watts/Dlucher/Qabil/H3 Hammer
39	Bathroom Fixtures/Accessories/Faucets	Grohe/Zilver/Porta/Masters/Sonex/Faisal
40	Electric Gas & Solar Water Heaters	Ariston – Italian/Zenith/A.O Smith/Isra/Nas Gas/Super Asia/Boss
41	Hand Dryer	Siemens (Model No: TH 92001) Plastic Body/ICONIC
42	Pumps & Motors	Grundfos Pumps (Denmark)/Peerless Pumps (USA)/Lowara/Saer KSB/Bore N Bore/Zarrah/Patterson/KSB/Wilo/HMA/Xylem/ICONIC
43	Water Tanks (03 Ply)	Masters
44	Manhole Covers	Atlas/CME/Alphine/AVT
45	Supports & Anchors	Fisher (Germany)/Hilti (Germany/Liechenstein) Norm (Turkey)/Index (Spain)/Inka (Turkey)/Diamond Walraven Links (Turkey)/Mungo (Switzerland)/Duro Dyne (Turkey)/ Duct Made (USA)/Structivo (UAE/Netherland)

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46	Others/Not Mentioned	In Line with the Specifications/BOQ/Recommendation & Approval of MEP Consultant

Note:-

Consultant holds the right to discard or add any supplier/manufacturer/Brand, keeping in view the past record and quality of their product. Consultant have right to ask to submit Quotation, Delivery Challans & Invoices for Verifications.

Technical submittal/samples of all materials/equipment shall be approved by Consultant. Contractor shall responsible to get the written approval from Consultant prior to procurement of materials and installations.

Contractor shall bound to procure all materials from above mentioned approved main authorized distributor Only.

All equipment shall supply only from the approved sources indicated above. However, in all the case the contractor shall submit the complete technical details of the equipment, material and obtain consultant's approval prior to delivery on site. Where "Approved Equivalent" is indicated, it shall be the sole discretion of the consultant to accept or reject the alternate proposal submitted by the contractor. If incase the "Approved Source" of any equipment/ material is not indicated above, the contractor shall require to obtain approval prior to order placing to any supplier. The imported/local equipment quoted shall be ensured that the authorized dealer ship and after sales services is available with the manufacturer's authorized dealer with the agent.

INSTRUCTION TO TENDERERS

1 Tendering Stage

Main/Sub Main MEP Tenderers/Contractors shall be pre-qualified from Client/Architect & Consultant's end prior to issuance of Tender Documents.

Contractors shall submit the complete profile specially in hand jobs details related to similar type of Projects.

2 Mobilization On Site:

Contractors shall submit the shop drawings of the project (as required by Consultant) and get written approval from Client/Architect & Consultant prior to start working on site.

Contractor shall submit the Materials/Technical Submittals (as per List of Approved Manufacturers) to Consultant's Office for approval prior to procurement of materials. Contractors shall bound to procure all materials from approved main authorized distributor Only (Mandatory).

Contractors shall coordinate with Client's Site Engineer for performing of Tests and signed off the documents and submit it to Client/Architect/Consultants Office prior to closure of access/ceilings/floorings/wall plastering for review and onward approvals (Mandatory).

Contractors shall responsible to coordinate with Client/Architect/Consultant for mockup inspections and approvals.

Contractor shall develop the Shop of Drawings of Distribution Boards, Panels with Project Critical Parts as per Instruction of Consultant's and submit it to Consultant's Office for approval prior to execution of works (Mandatory).

Contractors shall responsible to start and develop the as-build drawings process from day one of project and prior to closure of celling/walls plastering/slab pours and flooring for record purpose and shall submit the same with Bills alongwith pictorial references.

Contractors shall submit his bill alongwith detailed measurement sheets, asbuilt drawings, all test reports of MEP Works as per below stated, Distribution Boards Factory Test Certificates from DB Manufacturers, Load Balancing Reports, DB Director, fluke test reports of all IT & ELV cables, commissioning certification from vendor, warranty/guaranty and performance certificates of all systems and equipment. Billing and handing taking over process shall be as per Consultant instructions. In case of non-compliance to above, bill and handing taking over process may not be entertained.

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3 Billing & Documentation Protocol:

All documents shall be on Main Contractor Letter heads duly signed, stamped alongwith with witness by Client Site Engineer.
01 – Covering Page (duly mentioned rebate and taxes) as per LOA. 02 – Copy of LOA/LOI
03 – Bill Subtracts alongwith Detailed Measurement Sheets 04 – Megger Test Reports alongwith Pictorial References 05 – Distribution Board Approved Shop Drawings
06 – DB Manufacturers Factory Test Reports 07 – DB Directory
08 – Load Balancing Report of All DB's & Panels alongwith Pictorial References
09 – Earth Test Reports alongwith Pictorial References duly signed and witness by Client Representative

10 – ELV System Commissioning Report of Vendors/Suppliers
11 – Warranty, Guaranty and Performance Certifications
12 – Fluke Test Reports, Cross Connect Reports, Connecting Hardware Reports with Vendor Authorization Letter
13 – HVAC Copper Piping & Drain Piping Pressure Test Reports alongwith Pictorial Reference
14 – HVAC Control Wiring Megger Test Reports alongwith Pictorial References
15 – HVAC Gas Balancing Report (If required) alongwith Pictorial References
16 – Plumbing Water & Sewerage Piping Test Reports alongwith Pictorial Reference duly signed by Client Representative
17 – MEP Approved Technical Submittals
18 – MEP Asbuilt Drawings (as per actual). Plumbing, Fire Fighting & HVAC Drawings shall be in 2D/Two Line Drawings
19 – Handing & Taking Over Document (Duly Signed by Client/Authorized Representative)
20 – Contractor shall responsible to take the approval from Client in written against the any additional items, cost variations, increase of quantiles on prior to execution.

4 General

Tenderers is required to check that Tender documents issued are complete in all respect related to Conditions of Contract, Specifications, BOQ and Drawings. In the event that Contractor finds that Tender documents have any missing page/drawing or defaced page/un-printed page, he is required to inform immediately and obtain the above, as the case may be. In the event that this is not done, it will be assumed that the Contractor has received the documents complete and correct in all respect and it shall be Contractually binding on the Contractor.

Tenderers should examine carefully the Conditions of Contract, Bills of Quantities, Drawings, etc. They should visit and inspect the site and obtain all necessary information prior to submitting their Tender. Any detail/Specifications/quantities missing in the document should also be obtained. Once the Tender is submitted, it will be assumed that no further clarification was required.

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The rates to be inserted in the Bills of Quantities shall be deemed to include all costs of whatsoever description and expenses necessary for the Completion and Maintenance of the Works together with all risks, taxes/duties, liabilities and obligations, specific, or implied, in the Tender Documents. Arithmetical errors, if any shall be corrected and Tender Price amended accordingly.
Any clarification, revision, addition or deletion to the Tender documents may be made by the Consultant before the submission and opening of Tender. This will be made only by formal addenda issued by the Architect/Consultant. Such addenda will become part of the Contract documents. Each addendum shall be signed by the Contractor and returned with other Tender documents.
No unauthorized alteration may be made in the Tender documents. If any such alteration is made, tender may be liable for rejection.
The Client/Architect/Consultant reserves the right to reject any Tender without assigning any reason and does not bind himself to accept the lowest or any Tender. The Client/Architect/Consultants will not reimburse any loss or expense incurred by the Tenderer in submitting their Tender.
The Owner also reserves the right to award any part of the work to any specialized agency if in the opinion of the Architect/Consultant the Contractor is not able to deliver the required quality. No compensation shall be paid to the Contractor in such case.
All manufactured and other items should be used in the work in accordance with the Consultant's instructions, Specifications and also in accordance with generally accepted norms of good workmanship.
Contractor shall maintain a Record Book at site on which any instruction/comment issued by the Architect/Consultant or their representative shall be noted. A copy of this should be sent to the Architect/Consultant for their record. Changes in Specifications if any type of material or any other specification is changed, the net difference in cost shall be added or deducted, as the case may be, at actual without taking into account any overheads, profits, etc.
The works/areas shall be measured in accordance to any general or local custom except where otherwise specifically described or prescribed in the Contract.
The Contractor at his own cost shall take all necessary precautions to avoid damage to any existing wires, cables, drains and others services which may be encountered in carrying out the works and shall adequately protect, support and maintain such existing services.
The Contractor shall conform and comply in all respects with the provision of all laws, rules, regulations, bye-laws or orders of any Government or other authority whether Federal, Provincial, Municipal or Local from time to time in force which may be applicable to the Works and shall give all notices and pay all fees including Social Securities required thereby and shall indemnify and keep the Owner indemnified against all liabilities and penalties arising there under. Provided always that the Contractor shall not be responsible for obtaining any planning permission, which may be necessary in relation to the works.
The Contractor shall not sublet part or whole of the works, except where otherwise provided for in the Contract. The Contractor shall not sublet any part of the works without the prior written consent of the Architect/Consultant and such consent, if given, shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any sub-Contractor, his agent's employees or workmen.
If the Contractor proposes to appoint sub-Contractors for portions of the work, he should submit a list of sub-Contractors with full particulars of the firms to whom he proposes to sublet such work. No work will be allowed to be carried out by the Sub-Contractors unless the sub-Contractors have been pre-qualified by the Consultant.
Only such technical assistants as are skilled and experienced in their respective callings and such sub-agents, foremen and leading hands as are competent to give proper supervision to the work, they are required to supervise; and such skilled and Semi-skilled labor as is necessary for the proper and timely execution and maintenance of the works.
The Contractor shall be responsible for all acts and omissions of his technical assistants, foremen, leading hands, labor and other employees, agents and personnel engaged by him and for remunerating them, who shall always be considered as the employees/representatives/agents of the Contractor and shall have no privacy of Contract with the Owner/Consultant.

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Prior to mobilization on site, Contractor will be required to submit detailed Work Schedule and Site-Organogram to be approved by Consultant, which will be part of the Contract. The Contractor shall give or provide all necessary superintendence during the execution of the Works and as long thereafter as the Owner/Consultant may consider necessary for the proper fulfillment of the Contractor's obligations under the Contract.

The Contractor shall appoint competent and authorized Site Agent who shall have full authority to act for and bind the Contractor and who shall be constantly at the Site and shall give his whole time to the superintendence of the Works. Such authorized Site Agent of the Contractor shall receive on behalf of the Contractor and comply with the directions of the Consultant, and shall supervise the work of the workmen or others responsible to the Contractor. He shall also work in harmony with the other Contractors at the site. The Site Agent shall not be transferred from his operation without the consent of the Owner/Consultant.

The Site Agent shall carefully examine the drawings and the Specifications and inform the Consultant with any inconsistency or discrepancy which may appear. The Contractor shall be required to adopt all necessary measures of precaution for safety at site for personnel and materials. The precaution and safety regulations are to be followed form time to time and as directed by Consultant.

The Contractor shall provide and maintain, at his own cost, all lights, security, safety measures, etc. for the security and protection of the works, property, persons etc. or for safety and convenience of the public or others. The lighting must be adequate enough for true supervision and inspection of works. Watchman for owner supplied materials shall be employed and paid by the owner.

Contractor shall be responsible for the provision of adequate first aid facilities at the work site for all personnel employed or retained by Contractor or by any of its subcontractors in the performance of the work. In the event any of Contractor's personnel or the personnel of a subcontractor requires the services of an ambulance, hospital or physician, Contractor or its subcontractor will promptly pay all charges therefore directly to the providers of such services.

Contractor shall attend and shall cause his sub-Contractor to attend meetings when called by the Owner/Architect/Consultant/Project Manager to discuss progress of work and other related matters to the works and Contract.

Contractor shall be required to coordinate with all trade Contractors in order to make "Master Construction Schedule" which mean comprehensive construction schedule to be prepared by civil Contractor taking lead incorporating and executing a comprehensive schedule inclusive of Civil, Electrical, HVAC, Plumbing Works etc., to be reviewed and approved by the Project Manager/Architect/Consultant.

Master Construction Schedule will identify critical path showing sequence of works. Contractor is responsible to ensure flawless coordination with civil Contractor to regularly update Master Construction Schedule as and when required and seek approval from Project Manager/Architect/Consultant.

During the execution of works the Contractor, at his own cost, shall be responsible for clearing and clearance of all debris, rubbish, surplus material, etc. to the satisfaction of Engineer. All wall, floor, trenches, hand holes & man holes etc. cutting including basic repair and civil works is Contractor responsibility.

On the completion of the works Contractor, at his own cost, shall clear away and remove from the site all constructional plants, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and works clean and in a workman like condition to the satisfaction of the engineer. The rubbish shall be disposed off in the manner as directed by the site supervisor.

Any items of Bills of Quantities can be taken added or deleted, if Consultant desire so, it shall not affect price etc. structure of remaining part of Contract. Any material, if not found in accordance with Tender/Additional/Contractual Drawings/Documents/Bills of Quantities/Specifications/Consultant Instruction during or after installation or after completion, even in use and paid for, shall be replaced by Contractor, at no extra cost of Client.

The Contractor will place the order for all the material to be used at site and in his scope of works well in time so that delivery of these materials should not affect the schedule of completion of works. No excuse for the late delivery of the materials by other manufacturers shall be accepted in this regard.

Contractors are advised to contact consultant for clarification of each and every query before filling BOQ. No alteration in the rates will be entertained after submission / approval of tender documents.

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SCOPE OF WORKS

1 Scope of Work

The Contractor shall provide all materials and equipment except owner supplied item mentioned in BOQ to perform all the works necessary for the execution and completion including testing and commissioning of all systems as shown on drawings, specified herein, BOQ and to the satisfaction of the engineer in charge of the Consultant.

The following works are included in the Scope of Work:

Supply (Except OFM), Installations, Testing & Commissioning of Entire Works including Approvals of Shop Drawings, Material Technical Submittals, Test Reports, Asbuilt Drawings, Documents, Handing & Taking Over Process.

2 General

The entire electrical installation/work shall be carried out by Licensed Electrical Contractor, authorized to undertake such work under the provision of the, Electricity rules 1937 as adopted and modified upto date by the Government of Pakistan.

All works shall be carried out in accordance with the latest edition of the Regulations of the Electrical Equipment of Building issued by the Institute of Electrical Engineers-London, the contract Documents, The Electricity role 1937 and bye- laws that are in force from time to time. Any discrepancy between these specifications and any other rules and regulations shall be brought to the notice of Engineer for his instructions and the discussion of the accepting/controlling shall be final and conclusive.

The Contractor shall be responsible for completing all formalities and submitting the test certificates as per prevailing rules and regulations, and shall have the installation passed by the Government Electric Inspector of that region. All requirements of the Electric Inspector and the K-Electric (KE)/WAPDA/HESCO/LESCO shall be complied with.

3 Ambient Conditions

All material and equipment supplied and installed shall be designed, manufactured and tested to meet the following ambient conditions unless specifically stated otherwise for any material/equipment.

Minimum Indoor ambient temperature : 45-Degree Celsius
Maximum Indoor ambient temperature : Zero Degrees Celsius
Minimum Outdoor ambient temperature : 50-Degree Celsius
Maximum Outdoor ambient temperature : Zero Degrees Celsius
Maximum Relative humidity : 90 Percent
Maximum Altitude of project : 15 Meters above the mean sea level The atmospheric conditions are tropical, highly humid and corrosive.

4 Standards

The latest standards and codes of reputable organization shall be applicable for the material and equipment specified herein and for installation work. Such organization to be, NEC, IEE, BSS, VDE, etc. In case the specification and laid down herein differ from those given in the standards, then the equivalent or batter specifications shall govern. Wherever applicable the equipment shall also conform to the requirements of Pakistan Standard Institution (PSI).

The entire installation shall be free from improper grounds, open and short circuit faults. Tests shall be made in accordance with section "E" of I.E.E. Regulation for the Electrical Equipment of Building “1966" Edition in presence of a representative of the Employer / Consultant. Each panel shall be tested with mains connected to the riser, branches connected lamps removed or omitted sockets and wall switches closed. Each individual power line shall be tested with the power equipment connected for proper and intended operation. In no case shall the insulation resistance by lease than that allowed by the Regulations for electrical equipment of buildings. Failure shall be corrected in a manner satisfactory to the Employer/Consultant.

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It shall be the responsibility of the Contractor to test all system of the entire electrical installations as well as those installations where sequence operation is required. The Electrical contractor shall test for proper sequence and he shall leave the entire electrical installation in satisfactory working condition.

The Contractor shall guarantee that the electrical systems, including all components and accessories used therein are free of all grounds, shorts and open circuit faults, defective workmanship and materials, any electrical as well as mechanical defects, non-compliance of specification in any respect and will remain so, for the period of maintenance after the date of acceptance of the work. Any defects, appearing within the aforesaid period, shall be remedied by the contractor at his own expense.

All electrical installations in "Explosion Hazardous Zones" should comply with the Institute of Petroleum Code of Safe Practice Part-I Electrical. In general, the electrical colour coding of switchgear cubicles, control panels, desks etc., shall be in accordance with the respective IEC Recommendations.

Live parts of electrical connections shall be colour coded according to IEC 446 as follows:

Conductor	Coding	Colour	Designation	Alphanumeric	
A.C Network	Phase 1	L1	Red	Phase 2	L2 Yellow
Phase 3	L3	Blue			
Neutral	N	Black			
D.C Network	Positive	L +	White		
Negative	L -	Black			
Earthing	Protective Earth	PE	Green/Yellow		
Earth	E	Green/Yellow			

5 Intent

It is the intent of the Electrical & Allied Works Drawings, Specifications & BOQ that all work, equipment, conduits, wiring, piping work and accessories shall be provided/installed complete, commissioned, tested, adjusted and ready for opera- tion. The drawings, specifications, BOQ shall be taken as whole and not separately since they are intended to explain and illustrate each other. Any apparatus, appliance, material or work which in BOQ or in drawing not shown but mentioned in the Specifications, or Vice Versa, complete in all respects and ready for operation, even if not particularly specified, shall be provided by the Contractor without additional expense to the Principal.

6 Coordination

The Contract documents have been carefully coordinated to avoid overlapping or conflictions. However, should any discrepancies be noted between Contract documents within a trade or between trades, they shall be immediately reported to the Consultant/Engineer so that the required revisions or work directives may issue to all parties concerned, at the earliest possible date and no claim to be made to the principal for any such discrepancy.

7 Tests

The Contractor shall employ experienced personnel and at least one graduate electrical engineer to supervise and undertake electrical works on full time basis with prior approval of Consultant. No electrical work shall be allowed unless such competent person has been employed for execution of the entire Electrical work. The work and as for as possible keeping the same engineer foremen and workmen on the work from commencement to the completion.

The workmanship of the entire job must be in every way first class and only experienced and competent workmen should be allowed on the job.

8 Approval of Material & Equipment

The Material (except owner supplied items), workmanship, design and arrangement of all work installed under the Contract shall be subjected to approval of the Consultant/Engineer.

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Approval of material (except owner furnished items) and equipment by the Consultant/Engineer shall not be considered as a guarantee of measurements or building conditions. The approval does not in any way relieve the Contractor from his responsibility, or necessity, of furnishing material or reforming work as required in the Contract Documents.
The Contractor shall be responsible for his work until the completion and final acceptance and shall replace any of the same which may be damaged, lost or stolen without any additional cost.
Wherever applicable the material is to comply with the relevant British Standard Specifications.

9 Accuracy of Data

The layout of light fixtures, switches, conduits wire, cables etc. shown on the drawings is generally diagrammatic unless specifically dimensioned.
The layout, which shall finally include all approved materials to be used on the job should be checked for interference with work of other trades and with existing conditions before installation. The right is reserved by the Consultant/Engineer to make any reasonable change during the construction in location of light fixture switches, conduits, equipment etc. and its size as shown on the drawings in order to conform to the building conditions at no additional cost.
The general layout of conduits is to be provided by the Contractor on his shop drawings. The lines in between switches & light fixtures are switch lines showing the control of fixtures in Contract drawings.
All dimensions of doors, partitions walls etc., for the location of light fixture, Sockets, telephone, switches, DB etc. and equipment should be taken from the Architectural Drawings.

All items listed in the Bills of Quantities are re-measurable items. All items will be measured at each payment certificate and only the measured installed quantity/amount will be paid. Wastage of re-measurable items shall be for the cost of the Contractor. Quantities that needs to change for installation purposes that exceed 05%, needs written approval from the Engineer before supply and/or installation may occur.

10 As-Built Drawings

Keep an accurate record of all deviations in work as actually installed from work indicated on drawings, paying particular attention to dimensioning the underground utility lines, their offsets, conduit & cable runs and hand holes.
Contractor shall, before any work is started, procure, at his own expenses, an extra complete set of Contract drawings for his trade. Keep this set at the job site and use for "marking up" to suit the works as actually installed.
Record on this "AS BUILT" set each change, not later than 24 hours after such respective change in work in complete. Make changes neatly using sharp colored pencils, straight edges and drawing instruments.
Keep this "AS BUILT" set available for inspection at all time and at job completion, deliver it to the Consultant/Engineer for submission to the Principal, complete and unsoiled.
Upon completion of the work all changes should be incorporated on the reproducible drawings in Auto Cad format and one set of reproducible and five sets of prints should be submitted to the Consultant/Engineer, Upon failure to provide such drawings after one month of provisional acceptance by the Contractor, the principal may deduct a sufficient amount from the security of Contractor to compensate loss with the consent/approval of Consultant.

11 Guarantee

The Contractor shall furnish written guarantee with respect to satisfactory performance of each of the equipment (except owner supplied items). Guarantee shall be given for replacement and repair of part or whole of the equipment which may be found defective in material or workman-ship. The guarantee shall cover a minimum period of 6 months, after commissioning of the system and issuance of completion certificate.

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12 Equipment Protection

Unless otherwise noted, all equipment supplied shall conform, as a minimum, to the following protection classes, in accordance with BS 5490:

Indoor IP 42
Indoor Damp Areas IP 54
Outdoor Areas IP 65

With the exception of material specified to be hot-dip galvanized (after fabrication), all metal work (steel conduit and accessories, outlet and pull boxes, trunking, straps, brackets, hangers, frames, etc.) shall be given a protective treatment consisting of degreasing, derusting, two coats of zinc-chromate/red lead primer, and two coats of enamel during manufacture. After installation on site, any damaged metal work shall be given another coat of paint. Painting of steel conduits shall be to BS 1710 for color-coding purposes.
If properly rated equipment is not available, the Contractor shall provide field enclosures to attain the required IP degree of protection. If necessary cooling/exhaust fans and/or anti condensate heaters shall also be provided. No separate payment shall be made to attain the required IP degree of protection.

13 Site Conditions

The Contractor shall familiarize himself with the existing conditions and limitations at site. No claim due to site conditions will be acceptable.

14 Installation Instructions General

The Contractor shall furnish all labor and materials, tools and equipment required to install, connect, test and commis- sion all electrical equipment specified herein, whether or not such equipment is furnished by him or others. For all equipment to be installed by the Contractor, the Contractor shall supply and install all installation materials such as foundation bolts, leveling steel, shims, clamps, cable sockets, lugs, solder, wall plugs, steel rowel bolts, washers, nuts, etc. as required and without any additional costs. In general, the manufacturer's instructions for installation shall be followed. For any major departures from the working drawings that are deemed necessary by the Contractor due to site conditions, he shall submit the details and obtain the Consultants approval at least time one or two weeks before starting such works.
No Chiseling and Cutting of Structures is to be carried out without prior written permissions obtained from the Architect/Structural Engineer/Consultant. Contractor shall be carefully coordinate risers and downs with wall positions and shall have the same confirmed with the Civil Contractor.

15 Field Tests

Upon completion of the installation, the Contractor shall perform field tests on all equipment, materials and systems. All tests shall be conducted in the presence of the Consultant for the purpose of demonstrating equipment or system compliance with Specifications. All tests shall be made with proper regard for the protection of the equipment and the Contractor shall be responsible for adequate protection to all personnel during such tests. The Contractor shall record values of the tests made on all equipment. Three copies of all test data shall be given to the Consultant for record purpose. The witness of any tests by the Consultant does not relieve the Contractor of his guarantees for materials/equipment or any defects.

16 Measurements

The quantities set out in the BOQ are the estimated quantities, and they shall not be taken as the actual and correct quantities of work to be executed by the Contractor. The Contractor shall carry out actual measurements of works at site. All measurement shall be properly recorded in the measurement book and verified by Site Supervisor as per Electrical Consultant Instructions.

17 Precedence

The detail & other notes written or shown on the drawings shall have precedence on the Specifications and BOQ's, whereas the contents of BOQ shall have precedence on the Specifications, but the judgment of Consultant shall be final.

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WIRING/WIRING ACCESSORIES

1 GENERAL

The Contractor shall furnish and install all wires and cables along with the accessories as specified herein, in Bills of Quantities and Drawings. Apart from the material specified, the Contractor shall provide, the necessary material for termination or fixing of wires and cables such as lugs, solder, supports, bushes, glands for a complete wiring installation. Miscellaneous materials, like filing compound, identification tags, markers and earthing strips shall be furnished for completion of works in accordance with the best engineering standards and practice.

The wiring installation shall be carried out in strict accordance with the scheme, cable sizes and circuit details shown on the drawings or as specified. The Contractor is to produce purchase certificate from recommended manufacturers like Pakistan Cables for each & every lot and each and every coil of wires and cables to be stamped by Consultants before it is being sent to site for use.

2 LV CABLES & WIRING

Cable and conductors shall be PVC insulated, PVC sheathed with copper conductors, single/multi-core, unarmored 450/750 volts grade for light and socket circuits and 600/1000 grade for motor power circuits, to BS 6004 and BS 6346.

The neutral and phase conductors shall be colored black and red/yellow/blue respectively. The circuit protective conduc- tors shall be of green having same cross-sectional area as that of phase and neutral upto 16 sq. mm and above as specified in BOQ and drawings. Each circuit shall have its own separates neutral, and the "looping in" system for wiring shall be used. Joints shall be made at main switches, distribution boards and panels, sockets outlets, light fan points and switch boxes only; no joints shall be made in joint boxes, nor will any "through joints" be allowed.

PVC/PVC 3-core flexible cords shall be used for connection to the luminaries and fixtures from the ceiling rose/outlet box, through 3-terminal PVC connectors. Soldered or crimped tinned copper lugs, shall be used on the termination of cables and conductors 10sq.mm and larger. All multi-core cables shall be provided with compression glands, of the correct size and type, at panel entry positions.

3 INSTALLATION

The wiring through exposed or concealed conduit shall be started only after the conduit system is completely installed and all junction boxes, outlet boxes, switch boards, etc. have been fixed in proper position. For outdoor installation, where specified the cables shall be run direct in ground or in pipes as specified. The cables shall be pulled through conduit or pipes with care to prevent any damage to cables. To facilitate pulling, lubrication only as recommended by cable manufacturer may be used for decreasing friction. Under no circumstances shall oil or soap be used for cable pulling. Where several wires are to occupy the conduit or pipes they shall be pulled along together with earth continuity conductor. In general, the wires shall not be bend to radius less than ten times the overall diameter of the wire, or as otherwise recommended by cable manufacturer. The contractor shall furnish all installation material and labor for installation, testing and commissioning of cable system.

The wiring to power circuit and 15 amperes single phase socket outlet shall be run in conduit separate from light wiring conduits. Care shall be taken to ensure that all phase conductors are connected to the proper terminals and correct phase sequence is maintained. Wherever the size of conduit is not stated on drawings, it shall be in accordance with the Table based on I.E.E. Regulations.

The wires or cables shall be terminated at light points, switchboard, etc. such that the insulation is always led into the equipment to which connection is made. The cable entry hole in equipment shall be such as not to damage the cable. Inside the switchboards or control boards, the wires or cables shall be securely fanned out in a neat arrangement and laced with wax cord. The wires of different phases shall preferably be bunched separately. Identification tags or ferrules shall be provided at termination of wires in switchboards with respect to connected equipment for ease of installation and maintenance.

Contractor shall make sure the all floor/ceiling wiring/cables shall be run to avoid any other installation of third party equipment like FCU/FF Systems/HVAC System, Floor Recessed Equipment, Door Hinges/Recessed type door Machines.

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4 POWER, LIGHTING & CONTROL CABLES

PVC Cable for underground installation shall be PVC insulated and PVC sheathed.

Surface Cables for distribution system on surface shall be either single-core or multi-core, as required and PVC insulated and PVC sheathed.

All cables/wires, in conduits shall be of copper, PVC sheathed or PVC insulated as specified in design drawings or BOQ.

5 PHASE IDENTIFICATION

All cables shall have phase identification colors on insulation of each phase. The color code for three phase circuits shall be red, yellow and blue for phase conductor and black for neutral conductor. Single phase circuits shall have red for phase and black for neutral conductor.

6 CABLE ACCESSORIES

The wiring through conduit shall be started only after the conduit system is completely installed and all outlet boxes, junction boxes, etc. are fixed in position.

The wires shall be pulled in conduit with care and, to facilitate pulling, the cable manufacturer's recommended lubricant shall be used. Use of any kind of oil or soap will not be permitted.

Where several wires are to be drawn in the same conduit, they shall be pulled together. The wires shall not be bent to a radius less than ten times the overall diameter of the wire, unless otherwise recommended by the manufacturer.

The wiring shall be continuous between termination. The looping in system shall be followed throughout. Any joint in wires will not be allowed. The use of connectors will only be allowed at location where looping-in is rendered difficult. The consent of the Consultant in writing, will be required for using connectors.

The connector shall be of suitable rating having porcelains body, sunk-in screw terminals and terminal strips. The connector shall be wrapped with PVC insulation tape after its installation. A minimum of 150 mm extra length of cable/wire shall be provided at each termination to facilitate repairs in future.

7 INSULATION RESISTANCE TESTS

Insulation resistance tests shall be made on all electrical equipment by using a Megger tester of 500V for circuits upto 250 Volts and 1000V for circuits upto 500 volts.

The insulation resistance values of cables, transformers and switchgear etc., shall be as per BSS/IEEE/NEC/ICEA and Pakistan Electricity Rules.

Before making connections at the ends of each cable run, the insulation resistance measurement test of each cable shall be made. If insulation resistance test readings are found to be less than the specified minimum, the cable shall be replaced and the new cable installed and tested.

All switchgears shall be given an insulation resistance measurement test after installation, before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches and between each phase and earth.

If the insulation resistance of the circuit under test is less than the specified value, the cause of the low reading shall be determined and removed. Corrective measures shall include dry-out procedure by means of heaters if equipment is found to contain moisture. After all tests have been made, the equipment shall be reconnected as required.

8 CONTINUITY TEST

Continuity test on all the sub and main circuits shall be performed for phase, neutral & earth wires. Megger & Insulation Test Reports are Required duly witness and signed by Client representative.

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SWITCHES & SOCKETS

1 GENERAL

Switches to BS-3676, sockets to BS-196/546 ceiling roses, to BS-76 etc. generally to BS-5733 shall be of while moulded plastic, and all insulated type, suitable flush mounting.

2 SWITCHES

Switches shall be of Architect's approved or as per Bills of Quantities and to be installed on 16 SWG sheet steel back box. Unless otherwise specified, wherever switch control only the light points, these shall be gang type switches installed on outlet boxes.

3 SWITCH SOCKET UNIT - 1 PHASE

Switch - socket units shall be 250 volts AC 3 pin, rated for 15 Amps, combined 3 pin rated for 5 Amps, or a specified in the Bills of Quantities.

The 15A, 3-Pin switch socket unit shall be round pins whereas for computer power it shall be flat, 3 pin duplex/simplex as per drawings and Bills of Quantities.

4 OUTLET BACK BOXES

The outlet back boxes for installing switches, sockets, dimmers, etc. shall be of 16 SWG sheet steel derusted, degreased, rust-proofed and powder coated. These back boxes shall be of suitable dimensions to receive the conduits and the accessories and have ample wiring space.

A suitable earth terminal shall made of Brass 8x10mm cylindrical, MFZn5 B (Silver Bright Zinc Plated) to accommodate 6mm2 Cable for connecting the earth continuity conductor in the outlet back box. One fixed hook and the other moving hook, to facilitate the alignment of switch, both hooks on opposite sides. Color coating Mild Orange (RAL 2003) 80 – 100 microns and finish is electro-statically powder coated type.

Simplex switches and sockets outlet boxes shall be suitable for all European square/simplex switches and sockets outlets. Back boxes dimensions are 80x80x57mm deep drawn method.

Duplex switches and sockets outlet boxes shall be suitable for all European rectangle/duplex switches and sockets outlets. Back boxes dimensions are 134x75x57mm deep drawn method.

5 PULL BOXES

Pull boxes shall generally be of the same specifications as the outlet boxes. All boxes shall have adequate number of knock-outs and have a minimum depth of 56mm.

6 UNDER FLOOR OUTLET BOXES

The under floor pull boxes for power, data and telephone cables shall be of galvanized sheet steel construction (minimum 16 SWG thickness). The boxes shall be installed in floor screed. The height of the boxes shall be between 65mm to 70mm. Suitable arrangement of knock outs for conduit and trunking entry into the boxes is to be provided.

Metal adaptors forming barriers/crossovers/tees etc. shall be provided within the boxes as required for segregation of power cables from data and telephone cables. The cover together with the frame is to incorporate vertical adjustment. The cover is to be of minimum 14 SWG thick galvanized sheet steel.

Alternatively, the frame and the cover may be of sheet steel derusted, degreased, rust proofed and powder coated with the box in the screed remaining of galvanized sheet steel construction. The boxes shall include a brass earth terminal.

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7 INSTALLATION

Switches & switch sockets unit shall be installed on recessed-in-wall on 1.63mm thick sheet steel boxes or as specified, having appropriate dimensions. At locations where switches and sockets provided at one place, these shall be installed on separate sheet steel box so as to finish flush with the surface of the wall. These shall be fixed by means of flat head galvanized screws sunk in the plastic plate so as to finish with the surface.

All lighting circuits having local switches and capable of being controlled by motion sensors are to have manual by-pass provisions to allow for over-riding of motion sensors.

Where the sockets and switches are to be installed in wet/damp area, shall be of weather proof type.

8 MOUNTING HEIGHTS

The mounting heights for the electrical equipment and accessories shall be coordinated with the furniture layouts and shall be as per site requirements/instructions of Consultant/Architect and approval. In general the mounting heights from F.F.L. to fixtures shall be as shown in legend.

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LIGHTING FIXTURES

1 GENERAL

All lighting fixtures complete with lamps, accessories, installation materials, etc. shall be furnished and installed as per drawings. The fixtures shall be designed and built to give reliable service continuously at the normal voltage and current rating.

The light fitting schedule is given on the drawing and each type is specified in detail in the Bills of Quantities. The manufacturer's type and catalog number specified shall serve as illustration of the type of fixture required & any other approved equivalent fitting shall be acceptable. The equivalency shall be based on certified photometric data, as well as on construction material, shape, finish, etc.

The Contractor shall submit complete technical details and/or samples of each and every lighting fixture specified and obtain approval of the Consultant before commencing with placement of order.

2 INSTALLATION

The light fixtures shall be installed on surface of wall/ceiling or recessed in false ceiling. All surface mounted fixtures shall be installed by means of galvanized steel screws or bolts depending on the type of fixture and as advised by the Consultant.

Light fixtures installed in the false ceiling shall be supported to the roof in order to avoid loading on false ceiling.

NO Light Fixtures are to be used as Junction Boxes for Circuit Wiring or Cable Pulling. For all cable pulling, pull boxes are to be used and provided.

All Light fixtures identified for installation on False Ceiling are to be provided suitably placed access panels in false ceiling for ensuring ease of access and maintenance as required.

All fixtures and cables are to be tagged appropriately as per their circuit identifications as indicated in the drawings and Consultant instructions.

All Control Wiring for Intelligent Lighting Control Systems as well as for Motion Sensors & Timers to be via CAT-6 Cables.

Light Fixtures that are part of the Intelligent Lighting Control System and have localized switching are to be appropriately wired to allow for different lighting scenarios as required by Client.

3 EMERGENCY & EXIT SIGNS LIGHTS

Exit Signs/Emergency Lights shall be LED type, have an Energy Star rating, and meet the requirements of NFPA 101.

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CABLE CONTAINMENTS (CONDUITS & PIPES)

1 GENERAL

The work under this section consists of supplying, installing, and commissioning of all material and services of the complete conduit & pipe system as specified herein and/or shown on Tender/Construction Drawings and stated in the Bills of Quantities.

The Contractor shall discuss the electrical layout with the Engineer and co-ordinate at site with other services for exact route, location and position of the electrical lines.

2 PVC CONDUITS

All wiring for light, power, control and other circuits shall be carried out in class-B PVC pipe otherwise stated in BOQ, minimum 1" dia. The conduits & pipes shall be supplied complete with all accessories including bends, joints junction boxes & all cutting, repair, excavation backfilling etc., required for complete installation. The conduits for internal wiring to lights, sockets & power circuit shall be of approved brand.

Manufactured smooth bends shall be used wherever conduit change direction. The sharp 90 degree bends or tees shall not be allowed.

All conduit accessories shall conform to same material specification as given above for conduit.

The bends shall have enlarged ends to receive conduit without any reduction in the internal diameter at joints.

The round junction box for ceiling light points shall be of PVC having minimum dimensions of 63 mm diameter and 63mm deep. The outlet box at wall light points shall be general purpose type having minimum dimensions of 63 mm diameter and 38 mm deep. Pull boxes and inspection boxes shall be installed in conduit runs where required to limit the pulling of the cables or for inspection purposes. The pull boxes shall be square having minimum dimension of 100mm and 50 mm deep. In all cases, the minimum length of inspection boxes shall be not less than four times the cable manufacturers recommended bending radius of the cable. These dimensions are minimum only and the Contractor shall determine the exact size keeping in view ease of maintenance and installation. In general the use of pull boxes and inspection boxes shall be avoided. The pull boxes and inspection boxes shall be of 16SWG sheet steel provided with anti-rust paint and finished in gray enamel paint. Wherever installed, pull boxes and inspection boxes shall have a cover of 3 mm thick ply board with white Formica sheet glued firmly to it. The face plate shall be secured to the box by means of flat head galvanized screw.

3 INSTALLATION

The conduit shall be installed concealed in wall, column ceiling or under floor, on surface, above the false ceiling or as stated on the drawings. The drawings are diagrammatic and do not indicate the location of junction boxes, pull boxes or inspection boxes which shall be provided to suit site conditions.

The concealed conduits shall have a minimum of 25 mm concrete cover, when concealed in RCC works. The conduits in RCC works shall be laid before pouring of concrete. Chases shall not be made in RCC structure for conduits and accessories after pouring of concrete. In slab, conduits shall be laid over the bottom reinforcement steel and tied firmly to it. The conduit outlet boxes shall be held firmly to finish with the surface of the slab or beam. At expansions joints, flexible conduits or alternate arrangement shall be provided.

Where conduits have to be concealed in cement concrete work after concreting or in block masonry, chases shall be made with appropriate size of grinders, baby cutters, tools of required depth. The conduit shall then be fixed firmly in the recess and covered after plastering. All chases for concealing conduits shall be carried out by the Contractor. The Contractor will be responsible for bringing back the general finish to the condition that it was before the cutting and chiseling by the Contractor.

The work of conduit installation and cutting in cement concrete work or brick work shall be coordinated with civil construction so as not to cause any undue hindrances and delays in progress. The Contractor shall obtain approval of the Consultant for route, etc. to suit the site conditions before starting chasing and cutting. All junction boxes, outlet boxes, pull boxes etc., shall be installed concealed so as to finish with the surface.

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Conduits installed on surface shall be fixed by means of black enameled steel saddles and clamps having thickness of 3 mm. The clamps shall be installed at a distance of not more than 600 mm.

Bending of conduits by heating or otherwise can be adopted provided that the recommendations of conduit manufacturers are strictly followed. After completion of conduit installation, the system shall be checked for any charred or twisted portion prior to the pulling of wire. At all joints, PVC jointing solution must be used.

The termination of conduits is shown diagrammatically on the drawings. The exact final location of the termination shall be coordinated with the equipment to be installed. Conduit ends pointing upwards or downwards shall be properly plugged, in order to prevent the entry of foreign materials. All openings through which concrete may leak shall be carefully plugged and boxes shall be suitably protected against filling with concrete. At all termination of conduit, soft bushes shall be fixed to prevent sharp edges of conduit ends from cutting or damaging the wires or cables to be pulled through them.

The entire conduit system shall be installed and tested before wiring is carried out. Any obstruction found shall be cleared by use of a cutting or other approved device and the conduit be cleaned out before the installation of cable.

Only one manufactured type of conduit and conduit accessories will be permitted throughout the installation.

All sleeves/core cuttings/openings/handholes/mainholes/pull boxes shall be sealed from insides & outsides with a non- hardening watertight compound after the installation of cables and pipes and all sleeves intended for future use shall likewise be sealed for entire project.

4 OTHER ACCESSORIES

Outlet boxes, pull boxes, inspection boxes, switch and socket outlet boxes, fan regulator boxes, etc., to BS 4662, shall be of 16 SWG sheet steel, derusted, degreased, rust-proof with two coats of zinc chromate primer and painted with enamel, complete with earthing terminal. All boxes shall have ample wiring space, and boxes used outdoors shall be weather- proof.

5 APPLICABLE STANDARD/CODES

The latest edition of the following standards and codes shall be applicable for the materials specified within the scope of this section:

BS 31 Steel conduits and accessories
BS 4607 Non-metallic conduits and fittings for electrical installations
BS 3505 PVC Pipes and accessories
BS 1387 Galvanized Iron pipes & accessories

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DISTRIBUTION BOARDS

1 GENERAL

The distribution boards (DB) shall be of sheet steel fabricated totally enclosed, dust & damp proof suitable for recessed or surface mounting on wall/floor. It shall be factory assembled, tested complete with all accessories and Finnish with two base coats of anti-corrosive paint & at least one coat of approved color paint, stove enameled.

The cabling inside the DB shall be properly harnessed. An earth bar or terminal strip of suitable section be provided, which shall be permanently connected to be body of DB. Flexible copper strip shall earth the door of the DB.

All components and circuits shall be labeled consistent with the wiring and distribution of circuits by permanent fire resistant plastic tape.

The distribution board shall be designed for front operation and shall be rated for 440/250 volts, 3 phase, 4 wire, 50 Hz system, designed for flush mounting of all instruments on the front side, and have incoming & outgoing cable termination arrangement, terminal block/lineup terminals etc.

The name plate and suitable danger signs on the front and wiring diagram on the back side of door. The distribution board shall be fabricated with minimum 16 SWG thick sheet steel.

All the components shall be mounted on a common component mounting plate fixed inside the enclosure with a screwed sheet steel front plate. The enclosure shall be provided with rubber gaskets lockable hinged door with cam fastener.

Locks shall be provided where advised by Consultant.

The distribution board shall be supplied complete with all installation materials as recommended by the manufacturer and required for completion of work.

The short circuit current carrying capacity shall be as shown on drawings. Use of back-up fuses for meeting the short circuit level is not permitted.

2 COMPONENTS

The circuit breakers shall be triple pole/single pole as shown on the drawings manual operating device. The circuit breakers shall have temperature compensated thermal over load release and magnetic short-circuit release. All Breakers shall be DIN Rail mounted type.

All meters shall be flush mounting, moving iron, spring controlled. The front dimensions shall be 96 mm x 96 mm.

The meters shall have accuracy class 1.5. The ammeter shall be suitable for direct connection or to 5 Amp secondary of current transformers as shown on the drawings. The ammeters and voltmeters shall have measuring range as indicated on the drawings.

Air cooled, ring type current transformers (CT) shall be provided having transformation ratio as indicated on the drawings. The current transformers (CT) shall be of suitable burden having accuracy class 1.0.

The Bus bars shall be made of 99.9% pure high conductivity electrolytic copper and shall be completely isolated and mechanically braced for the specified fault level. The identification of bus bars shall be by providing colours sleeves on bus bar ends and these shall be red, yellow and blue for phases and black for neutral. The earth bus bar shall be green.

The bus bars shall be for three phase, neutral and earth and shall be of appropriate size to meet the electrical and mechanical requirements of the system. The temperature rise shall not exceed 45°C at rated current.

Circuit labeling sheet shall be provided with protective plastic cover. Panels & DB's shall be modular type design as per IEC 439-1.

Safety plates shall be segregated type in solid sheet 22SWG.

Ammeter and voltmeter selector switches shall be complete with front plate, grip handle and R-Y-B and OFF positions for ammeters and RY-YB-BR-RN and OFF positions for voltmeters. Indicating lamps shall be LED type and suitable for flush mounting complete with bases, 230 volt LED lamp and rosettes of approved colors.

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3 INSTALLATION

The location of DB as shown on the drawings is indicative and exact location shall be determined at site in co- ordination with other works and other services.
The surface mounted DB shall be installed by means of bolts on the mounting frame provided on the DB. The recessed mounted DB shall be installed before plastering of walls in a manner such that the door finishes flush with the surface.
All materials and accessories used for fixing of DB shall be of galvanized steel. Distribution board shall be as manufactured by approved vendors as mentioned in the list of approved manufacturers as enclosed with tender documents. The Contractor is required to balance the load as equally as possible over the multiphase supply as per Consultant Instructions and approvals.
The Contractor shall be responsible for the supply and installation of the supply cable from the meter box to the main distribution board (MDB). The size and length of the cable is listed in the Schedule of Cables and Bills of Quantities.

4 APPLICABLE STANDARDS/CODES

The latest editions of the following standards and codes shall be applicable for the materials specified within the scope of the section.
IEC 51 Direct setting electrical measuring instruments
BS 3871 Miniature & Molded Case Circuit Breaker
IEC 947-2 Low Voltage Switch gear and Control gear
IEC 439-1 Low Voltage Switchgear and Control Gear Assemblies
IEC 408 Low Voltage Air break Switches, Air Break Disconnectors Air breaks switch disconnectors and combination Units.
BS 1432 Bus Bars
BS 88 HRC Fuses
BS 89/90 Ammeters and Voltmeters
IEC 70 Power Capacitors.
BS 3938 Low Voltage Current Transformers
IEC 73 Colour for indicator lights and push buttons
All MCB's shall be type "C" Characteristic. All breakers mechanical life shall be minimum 6000 cycles.
The above electronic voltage relay (EVR) setting maybe vary as per site conditions and consultant instructions.

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5 MAJOR POINTS FOR DB'S/PANELS SHOP DRAWINGS (APPLICABLE FOR ALL DB'S/PANELS)

Contractor and DB manufacturer shall visit the site and verify the dimensions of approved shop drawings from the site prior to start manufacturing of all DB's & panels and make sure to provide and install recessed/concealed types. If there is any ambiguity, contractor and vendor shall get the prior approval from Consultant/Architect.
All components shall be new & same make as per latest available series/model and approved make only. Vendor shall responsible to share the project basis invoice of components alongwith the warranty certificates and should submit alongwith required factory acceptable test reports. All components shall be procured from authorized distributor Only. Consultant have right to ask procurement documents for verifications.
All doors & safety plates shall be 14 SWG having segregations & rest shall be in 16 SWG. Doors lock & hinges shall be imported and 'A' quality. 20% free space required for future use.
All neutral & Earth bus bars sizes shall be sufficient as per the present and future load requirements and separated, isolated from housing having sufficient number of holes and busbar sizes. All Copper (Phases, Neutral, Earth) bars shall be imported & tin coated make of Scomec/ABB Only otherwise indicated. Braided Copper Earthing Strip required for Doors (imported). Neutral and earth bars shall be suitable for Lugs type connections. Main Panel OR DB-C should have volt meter between the neutral and earth with ON/OFF Switch. Paint shall be 100 Microns (+/- 10% variation).

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LED indication lights are required on each DB with built-in voltages indicator having in A Quality. All phases indication lights and meters to be installed on inside the DB (on safety plates) instead of door. All incoming and outgoing cable shall be bottom and top (both sides). Volts/amps meters to be connected to common bus of DB.
UPS DB shall be based on dual UPS system (i.e. one for 10 hrs. per day and second one is for 24/7). Surge protection devices are required on both/dual of UPS/systems.
Heat sleeves required on busbars on entire length, proper safety plates are required, drawings pocket and tagging strips are also required.
MDB/ATS DB should have proper safeties, surge protector and 4 poles breakers/contractors on both supplies (i.e. KE/WAPDA & Generator). Manual bypass provisions including manual operations to be provided for both incoming supplies via ATS. MDB ATS should have digital voltages and ampere meters.
Contractor shall responsible to check and make sure all comments shall be incorporated in DB's/Panels prior delivery on site and installation as per approved drawings and requirements. Approved for construction (this approval shall not relieve the contractor from any omissions or error from Consultant drawings. work should confirm to specifications & BOQ. Amend as noted).
Contractor and DB manufacturer shall be responsible to ensure all connections and terminals shall be properly connected and tighten prior to energize the DB's & panels. Contractor shall recheck and verify that all number of incoming and outgoing shall be sufficient as per site requirements, number of incoming energy meters and their cable sizes.
Contractor shall responsible to get the final location of Panels from Consultant/Architect prior to installation otherwise if there is any change required, contractor will responsible to bear the any additional cost.
Contractor shall submit the copy of approved shop drawings to Client Engineering team and get the further approval on it prior to start manufacturing of the DB's and panels. DB Directory & Load Balancing Reports Required.
Contractor shall check the quantity of available K-Electric/WAPDA energy meters and should make the MDB/ATS as per the available supplies in the premises and also take the confirmation from Client before manufacturing of panel. Panel should execute as per available three phase standard supplies based on single and multiple meters' availability alongwith all safeties/protections on all sources. TP Box should be weather proof as per the requirements.
ETAB, Load Calculations, Load Balancing, Load Flow Chart, Breaker & Components Selection Reports are required. FAT & SAT Reports are Required duly witness and signed by Client representative.

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VOICE & DATA COMMUNICATION SYSTEMS

1 General

Work in this section includes supply, installation/laying, termination, fluke testing, tagging/labeling, certification and commissioning of a high quality Voice & Data Communication Cabling as per BOQ, drawings, technical specifications and Consultant instructions. This shall include the telephone exchange, telephone instruments, laying of conduit, outlet boxes, and telephone distribution boards and other facilities as required for completion of system. The Contractor shall be required to pull in 18SWG galvanized steel wire wherever empty telephone conduits are required. The Contractor is to co-ordinate and comply with the requirements local Telegraph & Telephone Department in all respect.

2 Telephone & Data Cables

CAT-6 UTP (un-shielded twisted pair) cables or specified in Bills of Quantities for Voice & Data communication system from JB/Rack to each outlet for voice and data communication system, different colors for voice and data cables shall be used.

3 CONDUIT & CONDUIT ACCESSORIES

The specification for conduits conduit accessories shall be same as contained in section conduits & pipes of these specifications. The telephone outlet boxes shall be 63mm x 63mm deep made of 16 SWG (1.63mm) sheet steel and provided with earth terminal and 3mm white plastic front plate.

4 TELEPHONE JUNCTION BOXES

This shall comprise 16 SWG (1.63mm) sheet steel box with hinged cover to be fixed flushed with the wall. The copper terminal strips shall be installed on insulated material sheet inside the sheet steel box and the number of terminals shall be as contained in the Bill of Quantities.

5 INSTALLATION

All complete telephone system, i.e. telephone exchange, conduits, outlet boxes, telephone junction boxes etc., shall be installed in complete conformity with the drawings and recommendations details in relevant section of these specifications of equipment manufacturer.

Identification marking shall be given on the free end of conduit both by color or suitable approved tag.

6 STANDARDS

All Active/Passive Equipment/Copper Cabling/Optical Fiber Cabling, Accessories, Components & Connecting Hardware shall be in accordance with the latest revision of the following standards:

ISO/IEC 11801, ISO/IEC/TR3 8802-1, ISO/IEC/8802-3, ISO/IEC 61935-1, IEC 60364-1, IEC 60950, EN50173, EN50174-1, EN50174-2, ANSI/TIA/EIA-568-568B, ANSI/TIA/EIA-569, TIA/EIA TSB-72, TIA/EIA TSB-75, BICSI, EN 60794-1-1 (DIN VDE 0888-100-1), IEC 60794-1-2 F5, DIN VDE 0888-3, RoHS 2011/65/EU, TIA/EIA 492-CAAB IEC 60793-2-50 Type B1.3, ITU-TG.652 D, ISO/IEC 11801 Ed.2.2, IEEE 802.3bt, IEEE 802.3 1GBASE-T, IEEE 802.3atISO/ IEC 11801 Edition 2. Arm 1-2, EN 50173-1: 2011, ANSI/TIA/EIA-568-C.2-2009, ISO 60512-99-01, IEC 61156-5; EN 50288-6-1, ISO/IEC 11801 Ed. 2.2; EN 50173-1, ANSI/TIA-568-C-2; IEC 60304, PoE/PoE++ IEEE 802.3af, IEEE 802.3at, IEEE 802.3at, IEEE 802.3 1000 Base-T, Racks shall minimum comply with ANSI/EIA, RS-310-D, IEC297-2, DIN41494; PART1, DIN41494; PART7, ETSI Standard Fluke Test Reports are Required of all type of Cat & Fiber Cables duly witness and signed by Client representative.

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EARTHING SYSTEM

1 EARTHING

An Integrated Grounding System is one that establishes a single point ground (or earthing) system that achieves an acceptably low resistance ground and provides for a low surge impedance path from any point in the system. This concept is often referred to as a Common Point Grounding (CPG) System. The ECC to be run with each circuit shall be loop-in and loop-out type, joints are not allowed.

2 EARTHING SYSTEM COMPONENTS

Grounding system shall be composed of the following components; Chemically activated grounding electrodes, commercially known as AGE-T. Thin wall, soft copper tubing of at least one half-inch diameter, of at least ninety-nine (99%) percent pure copper.

3 EARTH INSTALLATION

Chemically Enhanced Earth (C.E.E) is an electro-chemical grounding electrode that automatically conditions the soil/rod interface. This is accomplished by absorbing local moisture to facilitate the electrolytic process. The installation must be accomplished in such a manner as to encourage this process.

To install the C.E.E, first bore a hole in the selected location to a diameter of not less than six (6) inches to accommodate the Earth Conductivity Enhancement Compound (ECEC) and a depth equal to the length of the selected rod plus one foot.

Insert the electrode in the bored hole to its full length. It is preferable to leave the top exposed and protected by the special wall assembly, as illustrated. Pour 2 to 4 liters of water in the hole as it is being back filled.

Upon completion of installation of the earthing system, resistance-to-ground (earthing connection) shall be tested with a resistance tester. Where tests indicate resistance-to-ground is over 5 ohms, appropriate action shall be taken to reduce resistance to 5 ohms or less, by installing additional, properly spaced, ground electrode and treating soils in proximity to ground electrode.

4 EARTH PITS

These should be made of pre cost concrete with a cover lid and should be placed over the electrode in level with the finished ground level. The cover lid should have marking showing its number and written "Earth Electrode".

5 EARTH RESISTANCE TEST

Earth resistance tests shall be made by the Contractor on the earthing system, separating and reconnecting each earth connection as required.

The electrical resistance of the ECC together with the resistance of the earthing leads measured from the connection with earth electrode to any other position in the complete installation shall not exceed 1.0 OHM.

Earth resistance test shall be performed as per Electrical inspector's requirements. Where more than one earth electrode is installed, the earth resistance test of each electrode shall be measured by means of resistance bridge instrument.

Earth Test Reports are Required duly witness and signed by Client representative.

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AIR-CONDITIONIG WORKS

1 GENERAL

The Air-Conditioning Contractor shall supply all Labour, materials and equipment necessary for the complete installation, testing and commissioning of the entire Air-Conditioning works and equipment as per drawings, specifications, instructions of Consultant & Manufacturer.

2 DESCRIPTION

All out door air-conditioning units at grade level shall be set on 6" high concrete pads with rubber isolator or on walls with M.S. angle frame supports including treatment with red oxide paint.

Condensate drain pipes of indoor unit shall be given 1% slope in the direction of flow.

All control wires and cables shall be PVC insulated, PVC sheathed with copper conductors, single/multi-core, unarmored 450/750 volts grade for power and control wiring, to BS 6004. All cables shall have identification colors on insulation of each cable. The color code for control wiring shall be as per Consultant & Manufacturer Recommendations. Best quality cable accessories should be used with the approval of Consultant and Megger testing is also required after installation of cables.

The cable accessories, include, cable tray, cable trunking, floor trunking, clips, saddles (all galvanized). Cable glands made of brass should be used. All cables/copper pipes should be security fixed to cable tray or trunking with help of plastic ties. Cable lugs should be compression type of BICC U.K, Elpress Sweden or equivalent. Lugs should be pressed with help of compression machine as approved by consultants.

Provision of space clearance required for units (indoor & outdoor) shall be strictly followed as per manufacturer's recommendations and consultant instructions.

Indoor & outdoor units shall be installed properly leveled & aligned and it will be fixed with appropriate size Anchor.

In case of front discharge condensing unit, the air discharge direction will be the same as the wind direction but symmetry will be maintained according to site orientation and as per Architect/Consultant instructions.

Refrigerant piping shall be copper tubing conforming to standards as per Consultant instructions and approval. Use copper phosphorus filler metal for brazing rods. Perform pipe brazing by flowing nitrogen gas through it.

Copper pipes conforming to ASTM standard B88 type K, L & M with brazing joints shall be used for the refrigerant (gas + liquid) lines. Both pipes shall be insulated with 12mm thick slip-on expanded foam rubber insulation having the thermal conductance of 0.04 W/m.k. Prevent ingress of foreign material and water vapor into refrigerant pipes. Keep pipe ends plugged.

Install closed cell foam insulation on each copper pipes and drain pipes length. Wrap all joints with self-adhesive aluminum tape.

Insulated pipes exposed to the atmosphere shall be provided with cladding using aluminum sheet gage 28 as per instruction of Consultant.

Install pipe supports at every meter distance and at every change of direction. (if required)

Drain pipes shall be UPVC with solvent cement joints, closed cell rubber foam insulation and tapping in accordance with schedule as given in, unless otherwise shown on drawings or per consultant instructions. The entire length of the drain pipe shall be covered with 10mm thick slip-on expanded foam rubber insulation having the thermal conductance of 0.04 W/m. K.

Trap shall not be installed on small split unit's upto 2.0 TR capacities.

Do—not connect drain piping to drainage system. Use in—direct connection. As per A/C & Plumbing Consultants Instructions. All drain piping end side in gully trap and floor drain shall be done by plumbing contractor.

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Insulate drain pipe with closed cell foam insulation ¶ inch thick and seal insulation joints with self—adhesive tape.
After completion of wiring, check all wiring with Megger Tester to ensure no damages to wire insulation during pulling of wire into conduit and submit test reports to Consultant.
Owner supplied equipment shall be installed after they have been cleaned and blown free of all small particles.
Joints shall not be allowed in minimum 50 RFT lengths of copper pipes. Joint shall be allowed after 50 RFT lengths of copper pipes as per Consultant instructions and approval.
Joints shall not be allowed in minimum 10 RFT lengths of uPVC pipes. Joints shall not be allowed on Control & Power Wiring.
Contractor shall make sure all drain pipes should be properly sloped and plugged via end-caps were connected to floor drains/gully traps etc., prior to flooring and hold the water till unit installation and witness the periodically in the presence of Client representative and retesting also required prior to unit installations and duly witness by Contractor & Client representative.
Copper pipes shall be pressurized after installation of piping and pressure should be remained till unit installation and witness the periodically in the presence of Client representative and re ensure the pressure results at the stage of unit installation duly witness by Contractor & Client representative.
All indoor and outdoor units shall be properly earthed with electrical earthling system.
The contractor shall include the cost of all related works in his bid, which are necessary to complete the air conditioning systems in all respects. The related works include but not limited to the followings:
Excavation, backfilling, wherever pipes are to be run underground. chiseling, cutting, patching, keeping pipe sleeves and making good whereas required in wall, floor, trenches, underground, roof top etc.
All sleeves/core cuttings/openings/handholes/manholes/pull boxes shall be sealed from insides & outsides with a non- hardening watertight compound after the installation of cables and pipes and all sleeves intended for future use shall likewise be sealed for entire project.
Contractor is responsible to ensure the testing, quality, safety of installed copper pipes, control wiring and drain pipes during construction period to avoid any damages before & during chiseling and flooring works in the presence and witness by Client representative.
As-Built Drawings & Documents (02 Sets, Hard Copies & 02 CDs - Electronic Editable Copies in AutoCAD/Word/Excel) of entire air-conditioning works provide with all testing reports, certificates, guarantee cards, warranty cards etc., as per consultant instructions.

3 TESTING, BALANCING & COMMISSIONING

Testing, Gas Balancing & Commissioning of complete Air-Conditioning System as per specifications and instructions of Consultant & Manufacturer.
Refrigerant pipes testing shall include leak test by weeping pipes under Nitrogen pressure of at least 250~300 psi for 72 hours and then vacuum holding (500 mm Hg) for 2 hours to eliminate any moisture in the pipes as per consultant instructions. All equipment shall be started by and operated under the supervision of the qualified and approved personal of Contractor or the designated authority by Consultant.
All tests shall be conducted in the presence of Consultant who shall be given 05 days' notice before any test is to be conducted. Any materials, equipment or instruments required for the tests shall be provided by the Contractor at his own cost. A written test report duly signed by Contractor & Site Supervisor shall be submitted.
Additional or Extra items to be approved by Architect/Owner/Consultant before commencement of work.

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Before making connections at the ends of each cable run, the insulation resistance measurement test of each cable shall be made. If insulation resistance test readings are found to be less than the specified minimum, the cable shall be replaced and the new cable installed and tested.
The contractor shall arrange for all necessary balancing and testing equipment, instruments. Any defect in testing shall be rectified by the contractor entirely at his own cost, to the satisfaction of the Consultant. The installation shall be tested again after removal of defects and shall be commissioned only after approval by the Consultant. All tests shall be carried out in the presence of the Consultant.
Performance tests of individual equipment and control shall be carried out as per manufacturer's recommendation. All tests and balancing shall be carried out in the of presence Engineer-in-charge or his authorized representative.
Provide all materials, services, equipment, and personnel needed and perform all tests necessary to demonstrate to Consultant that all Air Conditioning Works meet the specified standards.
The contractor shall be responsible for commission the air conditioning unit in accordance with manufacturer's recommendations.
At all insulation joints use 75mm wide self—adhesive tape consisting aluminum foil and white Kraft paper as per consultant instructions.
All finish color shall be as selected by the Architect/Consultant.
C.C. pads for outdoor units will be constructed by Civil Contractor as per sizes given by Air-Conditioning Contractor after approval of marking/shop drawings from Architect/Consultant.
All remaining items are in the Scope of Air-Conditioning Contractor.

Equipment, Copper Pipe Pressure, Drain Pipe Pressure, Control & Power Wiring Megger, Gas Balancing Reports are Required duly witness and signed by Client representative.

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PLUMBING WORKS

1 SCOPE OF WORKS

The Plumbing Contractor shall supply all Labour, materials and equipment necessary for the complete installation, testing and commissioning of the entire Plumbing works and equipment as per drawings, specifications, instructions of Consultant & Manufacturer.

2 DRAINAGE PIPING MATERIALS

Non – metallic Drainage Piping:

UPVC Pipes to BS EN 1329-1 2000, Solvent Cement Jointing for Above Ground Applications. Joints shall be solvent welded fillings shall be injection moulded of high density & shall be imported.

UPVC Pipes to BS EN 1401-1 2009, Solvent Cement Jointing for Below Ground Applications. Joints shall be solvent welded fillings shall be injection moulded of high density & shall be imported.

3 INSTALLATION:

Each pipe shall be examined on arrival; defective pipes shall not be used. Drain shall be laid in straight lines and to even gradients between the levels shown, with pipes and fittings, of the type and diameter as shown on the drawings. Great care shall be exercised in setting out and determining the levels of the pipes and the contractors shall provide suitable instruments, set up and maintain sight rails, and bench marks etc., necessary for the purpose. Cut pipe shall have smooth regular ends at right angles to length of pipe. All pipes to be cut with an approved cutter. All drain shall be kept free from earth, debris, superfluous cement and other obstructions during laying and until the completion of the contract when they shall be handed over in a clean condition. Pipes shall be laid with the sockets leading upstream.

No pipes shall be laid on their collar or on blocks, tiles or other temporary supports.

Drainage line shall be accurately laid and shall be perfectly true to line and gradient from point to point in both vertical and horizontal planes.

Easily accessible clean-outs, flush with the floor finish should be provided at each bend and bottom of stacks and at all points shown on the drawings. The clean-outs should be made of “WYE” of full size, the minimum size shall be dia 75 mm.

Special fitting required in the installation not generally cast by manufacturers shall be got specially cast by contractor matching with the wall thickness specified.

Short bends, common offsets and double hubs will not be permitted. Short’ Tee. Wyes’ fittings are to be used in vertical piping only. All fittings shall conform to code requirements.

All soil and waste lines hung from the citing shall be supported at not more than 3’-0” centers for horizontal pipe and 2m for vertical pipes. Provide supports at all special fittings.

4 TESTING AND INSPECTION:

The entire drainage and vent systems shall be subjected to testing after installation to ensure a leak proof installation under operating conditions.

All the openings in the piping system shall be tightly closed by inserting test plugs of heavy rubber gasket that fit supply all around the opening. The highest point will be left open to supply water and may be raised if necessary by temporary jointing to develop a minimum head of five (5) meters of water at each section of the system. Water is filled to the point of overflow and any drop in the level of water will be found by inspection. The water level will be checked for no drop for at least 15 to 30 minutes. No section will be tested at a pressure more than 6m of water. High stacks will be tested in sections, starting from the top section and then connecting top section to next lower section.

This contractor shall furnish & pay for all devices, materials, supplies, labor required in connection with all tests. All tests shall be made in the presence of and to the satisfaction of the Engineer.

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This contractor shall also be responsible for the work of other trades. The contractor shall submit test reports/certificates to the Engineer or Engineer respective & obtain his certification that the tested piping system have passed the prescribed tests.

5 WATER PIPING MATERIALS

Polypropylene Random Co-Polymer: Confirming to BS 6700, DIN 8077/8078 or equivalent. Jointing shall be with Fusion Jointing method. Fittings and pipe shall be suitable to work on normal operation pressure of 20 bars and 79-degree C.

All support channel, hangers and fasteners shall be as per manufacturer recommendation tools are recommended by the manufacturer shall be used for installation.

6 INSTALLATION OF PIPING, VALVES AND FITTINGS:

Pipes shall be cut accurately measurements established at the job site and worked into place without springing or forcing. Excessive cutting or other weakening of the building structure to facilitate piping installation will not be permitted without written approval.

Shop drawings by Contractor shall show location of all supports, typical details for special anchorages for suspended piping, valves, tank, pumps, converters, and other mechanical equipment. Where supports are required between structural framing members, suitable intermediate metal framing shall be provided and detailed.

Pipe shall have burrs removed by reaming and shall be installed to permit free expansion and contraction without damage to joints and hangers. Changes in direction shall be made with fittings. All piping shall be stalled with sufficient pitch to ensure adequate drainage and venting. Piping connections to equipment shall be provided with unions or flanges. Open ends of pipelines or equipment shall be properly capped or plugged during installation to keep dirt and other foreign matter out of the systems.

Screwed joist shall be used on metallic pipes of diameter 50mm blow. Joint shall be made tight with approved thread joint compound applied to the male thread only.

Flanges and Unions shall be faced true. Flanges shall be provided with 1.6mm asbestos-free gasket, made square and light. Union or flange joints shall be provided in each line immediately preceding the connection to each piece of equipment such as coils, pumps control valves & other similar items.

The run arrangement of pipes shall be approximately as shown on the drawings as directed during installation and shall be as straight and direct as possible, forming right angles or parallel lines with building walls and other pipes, and shall be neatly spaced. Offsets will be permitted only where required to permit the pipes to follow wall, standard fittings shall be used for offsets. All riser shall be erected plumb and true, and shall be parallel with walls and other pipes and shall be neatly spaced. All of pipes shall be concealed in wall, slabs unless otherwise shown on drawings or directed by engineer.

Special precaution shall be taken in installation of piping concealed underground or in the project construction, to see that the piping is properly installed, should it be necessary to correct piping so installed, this Contractor shall be held liable for any injury caused to other work in the correction of this piping.

Reducing fittings, unless otherwise approved in special cases, shall be used in making reduction in size of pipe. Bushing will not be allowed unless specifically approved.

7 PROTECTIVE PAINTING & COATING:

Protective painting & coating shall be carried out on pipes as specified in closed “painting, coasting & stenciling”.

8 TESTING:

Hydraulic testing to following pressures shall be carried out the complete piping. For cold water, potable water and fire protection piping-minimum 100 psi or 1.5 times maximum operating pressure, whichever is maximum. No loss of pressure shall be indicated for 3 hours. Tests shall be conducted in the presence the Engineer/Engineers representative. Defects disclosed by the test shall be repaired or if required by the engineer, defective work shall replace with new work without any extra charge to the employer. Test shall be repeated as directed, until all work is proven satisfactory. This contractor shall furnish & pay for all devices, material, supplies, labor required in connection with all tests.

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9 VALVES & STRAINERS:

Gate Valves: Dia 50mm (2 inch) & smaller: 125 psi (860 k Pa) SWP, 250 F (120 C), threaded ends, bronze body, union bonnet, bonnet ring, disc stem, wedge disc. Hand wheel nut, packing nut, gland, stuffing box, bonnet, bonnet ring, disc and body shall be of malleable iron. Packing be suitable for specified usage but shall not use asbestos. Stem shall be manganese bronze.

Dia 65mm (2 ½ inch) & larger: 125 psi (860 k Pa) SWP, 250 F (120 C), body bronze mounted with flanged ends. These shall be of solid wedge disc type, with outside screw and yoke (rising stem). Body and bonnet shall be of cast iron. Wedge shall be of cast iron with bronze disc. Seat ring shall be bronze. Packing shall be suitable for specified usage but shall not use asbestos. Packing gland shall be cast iron. Yoke shall be of cast iron and yoke nuts shall, be of bronze. Hand wheel shall be of cast iron.

Globe Valves: Dia 50mm (2 inch) & smaller: 125 psi (860 kPa) SWP, 250 F (120 C), bronze, threaded ends. body, bonnet, disc holder, stem lock nut, packing nut and disc lock nut shall be of bronze. Renewable composition disc shall be provided malleable iron with stem of manganese bronze. Renewable disc shall be provided suitable for water & stem. Packing shall be suitable for specified usage, but shall not use asbestos.

Dia 65 mm (2 ½ inch) & larger: 125 psi (860 kPa) SWP, 250 F (120 C), cast iron body, bronze mounted with bronze faced disc and yoke bonnet, and shall be flanged. Hand wheel, gland, bonnet and body shall be of cast iron. Stem shall be of manganese bronze. Packing shall be suitable for specified usage but shall not use asbestos. Stem lock nut, disc and seat ring shall be of bronze. Disc shall be renewable composition type.

Swing Check Valve: Dia 50mm (2 inch) & smaller: 125 psi (860 kPa) SWP, 250 F (120 C), threaded ends. Caps, hinge pin, body, hinge, disc nut and disc shall be bronze.

O 65mm (2 ½ inch) & larger: O 50mm (2 inch) & smaller: 125 psi (860 kPa) SWP; 250 F (120 C), cast iron body, including valve cap and disc. Hinge pin, seat ring shall be of bronze. Ends shall be flanged.

Ball Valves: O 50mm (2 inch) & smaller: 125 (860 kPa) SWP, screwed; two-pieces cast bronze body, chrome plated brass ball, Teflon ball and flange seals, rods silicon brass stem, Teflon and Vinton “O” ring stem seals, zinc planted carbon stool with vinyl grip and brass handle nut.

Float Valve: Shall be best quality heavy duty type provided with Dia 150mm copper ball and heavy duty bronze float arm. Valve shall provide tight shut off a full closed position.

Foot Valve for pumps suction line Shall be installed where required or indication on the drawing. Foot valve shall be of brass, and shall be provided with a spring loaded vertical check disc with gasket for tight shut-off.

Gaskets: non-asbestos, compressed gasket material with high-strength armed fibers bounded with high grade nitrite NBR synthetic rubber, suitable for 750 F (400 C) and 1450 psi (10000 kPa).

Thread Lubricant: non-hardening, non-poisonous as approved.

Installation of Valves and Strainers: All gates valves, globe valve, check valve, control valves, butterfly valves, drain cocks, etc. necessary for satisfactory operation of the system shall be provided whether indicated or not.

All valves having stem over 2m heights shall be provided with galvanized chain operators. Valves in horizontal lines shall be installed with stem horizontal or above. Isolation gate valves shall be installed on each side of each side pieces of equipment as pumps, coils and other similar items; at the midpoint of all looped mains; and at other points indication or as required for draining, isolation or sectionalizing purpose.

Each valve shall be identified with not less than 35mm round or square black over white laminated plastic tags secured brass chain. Tags shall be engraved to identify valve by number and function. Strainers shall be installed wherever necessary to protect equipment and control valve, where proper functioning would be affected by dirt on the seat or scoring of the seat. Strainers shall be arranged not to clog piping and allow easy disconnection for change.

All strainers 50mm and above shall be provided with O 20mm ball valves for blow-off. Strainers shall allow removal of accumulated dirt and screen replacement without disconnecting main piping.

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9 SUPPORTS & ANCHORS:

Pipe hangers, brackets, saddles, inserts, clamps and pipe rolls including rods, bolts, turn buckles, bases and protection shield shall conform to standard recommended engineering practice. Design generally accepted as exemplifying good engineering practice, using stocks or production parts, shall be utilized wherever possible. Chain, wire, strap or other make shift devices will not be permitted as hangers or supports. Pipe hangers shall be capable of supporting the pipe in all conditions of operations. angers shall be supported with beam – clamps, concrete inserts, Phillips concrete fasteners, or raw bolts. Concrete inserts when used shall be installed in the exact location prior to the pouring of the concrete.

Suspended Piping Supports shall be supported by adjustable hangers or support, which shall provide a mean of vertical adjustment after erection. Unless otherwise indicated on drawings maximum spacing between pipe supports for straight runs of steel pipe shall be in accordance with recommended spacing shown in the table given below:

	Nominal Pipe Size, Ø mm											
	13	20	25	40	50	65	75	100	125	150	200	250
Maximum Span, m	1.5	1.8	2.1	2.7	3	3.3	3.6	4.2	4.8	5.1	5.2	6.7
Rod Size, Ø mm	10	10	10	10	10	13	13	16	16	19	22	22

Pipe hangers and supports shall be spaced not over 1.5. apart at heavy fittings and valves. A hanger shall be installed at not over 300mm form each change in direction of piping. CI Piping shall be guided or supported in the center of each riser but not over 4.5m on centers and shall be supported at the base of the riser on a base elbow or tee with a pipe stand only where required. PVC Piping shall be supported at not more than 10 times of outer diameter of the pipe for horizontal piping and 3m for vertical spacing shall be ensured but shall not exceed 3 feet.

PPRC Piping shall be supported as per the chart given below.

	Nominal Pipe Size, Ø mm								
	15	20	25	40	50	65	75	90	110
Max Span mm	400	600	750	900	1000	1200	1400	1500	1600

The Above chart is for a temperature of 20* C to 50* C. For other temperature ratings, manufacturers recommendations to be followed. Other Supports: Equipment and any other plant component requiring and anchoring shall be provided with properly engineered supports and anchors, as shown on the drawings, or as per manufactures recommendation or as directed by the Consultant/Engineer in all cases drawings & submitted for supports & anchor system shall be submitted to the consultant and approval obtained.

No separates payment shall be made for supports, hangers, sleeves, etc. and cost for these shall be part of the price quoted for the supported piping, equipment, etc.

10 TRAPPED FLOOR GULLY

Shall be of uPVC similar and suitable with piping with dia 50mmx3 inlets and 70 mm outlet. The drain shall be provided with a trap having a minimum water seal of 50mm. The drain grating and all visible parts shall be of S.S. with level adjusting threads.

11 VENT COWL

All vent-lines terminating above the building shall be provided with best quality uPVC vent cowls similar and suitable with piping and sizes.

12 CLEAN-OUT FOR FINISHED FLOOR AREAS

Shall be similar to ZURN Model No. Z1323. These shall be of cast iron, designed to provide an air tight seal. The cleanout shall be provided with a threaded brass plug that shall fit into the hub and provide and air tight seal. A key to unscrew the plug shall be provided. A brass ferrule shall be provided, that shall screw into the hub with the capacity of level

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adjustment. The ferrule shall be provided with a round scoriaeted brass top and a long brass screw threaded into the plug below, shall hold down the top cover. All visible parts shall be chrome plated.

13 STAINLESS STEEL FLOOR TRAP/WASTE

These shall be fabricated out of SS 304 and as approved by Engineer/Consultant.

14 STAINLESS STEEL FLOOR OUTLETS.

These shall be fabricated out of SS 304 and as approved by Engineer/Consultant.

15 ROOF DRAIN

Shall be similar to Zurn Model Z100, Cast iron body with combination membrane flashing clamp/gravel guard and low silhouette Polly dove.

16 DRAIN GRATING

Drain gratings shall be installed on open channel drains where shown on the drawings. These shall be fabricated out of mild steel formed members & hot dipped galvanized after fabrication, in accordance with details shown on the drawings. Support angle iron member shall be grouted into the concrete edge of the channel, and the drain gratings laid loose on thop. Grating length shall not exceed 4ft and each grating shall fit level and smoothly on the support member.

17 PLUMBING FIXTURES & ACCESSORIES

All fixtures shall be free from imperfections, true as to line, angles, curves and colors, smooth the water tight and complete in every respect. All fixtures specified to be of vitreous ware, shall be fired vitreous chain ware of the best quality, non-absorbent and burned so that the whole mass is thoroughly fused and vitrified producing a material white or colored, which when manufactured will show a homogeneous mass, close the consultant, thoroughly fused, and united to the body, without discoloration, chips, or flaws and shall be free from craze. Warped or other imperfect fixtures will not be accepted.

All plumbing fixtures supplied shall be as specified & from source indicated. All fixtures shall be furnished from one manufacturer unless otherwise specified. All fittings, cast brass set screws, escutcheons faucets, traps, exposed piping, etc. shall be of brass, chrome plated over nickel plate with polished finished. Any support nuts etc. visible shall likewise be chrome plate over nickel plate.

After installation of plumbing accessories, the contractor shall ensure their protection against damage, misuse and general deterioration. Fixture outlet shall be plugged with material to prevent entry of external of external debris. All chrome plated and other metallic fitting shall be provided with a coat of grease to prevent their deterioration. All items to handing over must be in perfect condition in the visual and operational sense.

All fixtures and accessories shall be first quality, imported, unless otherwise indicated. All cracks between fixture and walls shall be filled using approved silicone sealant. Fixture & Fittings shall be best quality locally manufactured from approved sources refer PLUMBING FIXTURES SCHEDULE under EQUIPMENT & MATERIAL SCHEDULE.

Installation: All screws, bolts and other anchoring devices shall be stainless steel or chrome plated Brass. Install toilet fixtures, fitting s and accessory unit in accordance with manufactures instructions, using fasteners, which are appropriate to substrate and recommended by manufactures of unit. Install units plumb and level, firmly anchored with brass screws and nylon anchors at locations and at heights indicated in drawings.

Set accessories plumb, level, and square at locations approved, in accordance with manufactures instruction for type of substrate involved. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items. Remove and replace accessories, which are broken, clipped, cracked, abraded or damaged in other ways during construction period, including natural causes accidents and vandalism. Clean and polis all exposed surface after removing temporary labels and protective coatings.

Hot Water, Cold Water, Drains, Sewerage, Fixtures, Equipment Test Reports are Required duly witness and signed by Client representative.

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BD-1
Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

B. Work Items. (Road /PHEWork)*

1. The Bill of Quantities contains the following Bills and Items:

Bill No. 1	-	Earthworks
Bill No. 2	-	Hard Crust and Surface Treatment
Bill No. 3	-	Culverts and Bridges
Bill No. 4	-	Subsurface Drains, Pipe Laying and Man holes
Bill No. 5	-	Tube wells, Pump houses and Compound wall
Bill No. 6	-	Miscellaneous Items

Day work Schedule Summary
Bill of Quantities

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

**Procuring Agency can add and delete the Items as per its requirement.*

DELETED

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BILL OF QUANTITIES (SAMPLE)*

B. Work Items (Buildings)

1. The Bill of Quantities contains the following Bills and Items:

Bill No. 1	-	Plinth and Foundation.
Bill No. 2	-	Ground floor.
Bill No. 3	-	First and Subsequent Floors.
Bill No. 4	-	Internal Water Supply and Sanitary Fittings.
Bill No. 5	-	Internal Electrification.
Bill No. 6	-	Miscellaneous Items
Bill No. 7	-	External Development

Day work Schedule
Summary Bill of Quantities

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

** Procuring Agency can add and delete the Items as per its requirement.*

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Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

Bill No. 1 Earthworks/Plinth and Foundation

Item	Description	Unit	Quantity	Rate		Amount
				Rupees in figures	Rupees in words	Rupees
1	2	3	4	5		6
101						
102						
103						
104						
105						
106						
Total for Bill No. 1 (Carried forward to Summary Page)						

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Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

Bill No. 2 Hard Crust and Surface Treatment /Ground Floor.

Item	Description	Unit	Quantity	Rate		Amount
				Rupees in figures	Rupees in words	Rupees
1	2	3	4	5		6
201						
202						
203						
204						
205						
206						
Total for Bill No. 2 (Carried forward to Summary Page)						

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Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

Bill No. 3 Culverts and Bridges/First and Subsequent Floors

Item	Description	Unit	Quantity	Rate		Amount
				Rupees in figures	Rupees in words	Rupees
1	2	3	4	5		6
301						
302						
303						
304						
305						
306						
Total for Bill No. 3 (Carried forward to Summary Page)						

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Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

Bill No. 4 Subsurface Drains/ Pipe Laying and Man holes/Internal water Supply and Sanitary Fittings

Item	Description	Unit	Quantity	Rate		Amount
				Rupees in figures	Rupees in words	Rupees
1	2	3	4	5		6
401						
402						
403						
404						
205						
406						
Total for Bill No. 4 (Carried forward to Summary Page)						

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Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

Bill No. 5 Tube wells and Pump-houses/Internal Electrification

Item	Description	Unit	Quantity	Rate		Amount
				Rupees in figures	Rupees in words	Rupees
1	2	3	4	5		6
501						
502						
503						
504						
505						
506						
Total for Bill No. 5 Carried forward to Summary Page)						

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Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

Bill No. 6 - Miscellaneous Items

Item	Description	Unit	Quantity	Rate		Amount Rupees
				Rupees in figures	Rupees in words	
1	2	3	4	5		6
601	Mobilization Cost					
602						
603						
604						
605						
606						
Total for Bill No. 6 Carried forward to Summary Page)						

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Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

Bill No. 7 External Development

Item	Description	Unit	Quantity	Rate		Amount Rupees
				Rupees in figures	Rupees in words	
1	2	3	4	5		6
601	Items of water supply & drainage					
602	Paths & parks					
603	External electrification					
604						
605						
606						
Total for Bill No. 7 Carried forward to Summary Page)						

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BILL OF QUANTITIES

C. Day work Schedule

General

1. Reference is made to Sub-Clause 13.6 of the General Conditions of Contract. Work shall not be executed on a day work basis except by written order of the Engineer. Bidders shall enter basic rates for day work items in the Schedules, which rates shall apply to any quantity of day work ordered by the Engineer. Nominal quantities have been indicated against each item of day work, and the extended total for day work shall be carried forward to the bid price.

Day work Labour

2. In calculating payments due to the contractor for the execution of day work, the actual time of classes of labour directly doing the day work ordered by the Engineer and for which they are competent to perform will be measured excluding meal breaks and rest periods. The time of gangers (charge hands) actually doing work with the gang will also be measured but not the time of foreman or other supervisory personnel.

3. The contractor shall be entitled to payment in respect of the total time that labour is employed on day work, calculated at the basic rates entered by him in the Schedule of day work Rates for labour together with an additional percentage, payment on basic rates representing the contractor's profit, overheads, etc., as described below:

   a) the basic rates for labour shall cover all direct costs to the contractor, including (but not limited to) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances and any sums paid to or on behalf of such labour for social benefits in accordance with Pakistan law. The basic rates will be payable in local currency only; and

   b) the additional percentage payment to be quoted by the bidder and applied to costs incurred under (a) above shall be deemed to cover the contractor's profit, overheads, superintendence, liabilities and insurances and allowances to labour timekeeping and clerical and office work; the use of consumable stores, water, lighting and power; the use and repair of staging's, scaffolding, workshops and stores, portable power tools, manual plant and tools; supervision by the contractor's staff, foremen and other supervisory personnel; and charges incidental to the foregoing.

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SCHEDULE OF DAYWORK RATES

I. Labour

Item No.	Description	Unit	Nominal Quantity	Rate (Rs) in Figure	Rate (Rs) in Words	Extended Amount (Rs.)
1	2	3	4	5	6	7
D101	Ganger	Hr	500			
D102	Labourer	Hr	5,000			
D103	Brick layer	Hr	500			
D104	Mason	Hr	500			
D105	Carpenter	Hr	500			
D106	Steel work Erector	Hr	500			
	etc	Hr	500			
D113	Driver for vehicle up to 10 tons	Hr	1,000			
D114	Operator for excavator, dragline, shovel or crane	Hr	500			
D115	Operator for tractor, (tracked) with dozer blade or ripper	Hr	500			
D122	Sub Total Allow percent of subtotal for Contractor's overhead, profit, etc, in accordance with Paragraph 3(b) of Day work Schedule Total for Day work: Labour : (Carried forward to Day work Summary)					

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Day work Material

4. The contractor shall be entitled to payment in respect of materials used for day work (except for materials for which the cost is included in the percentage addition to labour costs as detailed heretofore), at the basic rates entered by him in the Schedule of Day work Rates for materials together with an additional percentage payment on the basic rates to cover overhead charges and profit, as follows:

   a) the basic rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc., and shall provide for delivery to store for stockpiling at the site. The basic rates shall be stated in local currency but payment will be made in the currency or currencies expended upon presentation of supporting documentation;

   b) the additional percentage payment shall be quoted by the bidder and applied to the equivalent local currency payments made under Sub-Para(a) above; and

   c) the cost of hauling materials used on work ordered to be carried out as Day work from the store or stockpile on the site to the place where it is to be use d will be paid in accordance with the terms for Labour and Constructional Plant in this Schedule.

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SCHEDULE OF DAYWORK RATES

II. Materials

Item No.	Description	Unit	Nominal Quantity	Rate (Rs) in Figure	Rate (Rs) in Words)	Extended Amount (Rs.)
1	2	3	4	5	6	7
D201	Cement, ordinary Portland or equivalent in bags	M:Ton	200			
D202	Mild Steel reinforcing bar up to 16mm diameter to BS 4449 or equivalent	M:Ton	100			
D203	Fine aggregate for concrete as specified in Clause	Cu: M	1,000			
D204	etc					
D222	Gelignite (Noble Special Gelatine 60 % or equivalent) including caps, fuse, wire and requisite accessories	M:Ton	10			
D223	Sub Total Allow percent of subtotal for Contractor's overhead, profit, etc., in accordance with Paragraph 4(b) of Day work Schedule Total for Day work: Materials (Carried forward to Day work Summary)					

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Day work Constructional Plant

5. The contractor shall be entitled to payments in respect of constructional plant already on site and employed on Day work at the basic rental rates entered by him in the Schedule of Day work Rates for constructional plant. The said rates shall be deemed to include complete allowance for depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricants, and other consumables, and all overhead, profit and administrative costs related to the use of such equipment. The cost of drivers, operators and assistants will be paid for separately as described under the section on Day work Labour.

6. In calculating the payment due to the Contractor for constructional plant employed on Day work, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Engineer, the travelling time from the part of the site where the constructional plant was located when ordered by the Engineer to be employed on Day work and the time for return journey thereto shall be included for payment.

7. The basic rental rates for constructional plant employed on Day work shall be stated in Pakistani Rupees.

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Appendix-D to Bid

SCHEDULE OF DAYWORK RATES

III. Constructional Plant

Item No.	Description	Unit	Nominal Quantity	Rate (Rs.) in Figure	Rate Rs.) in Words	Extended Amount (Rs.)
1	2	3	4		5	6
D301	Excavator face shovel or dragline:					
	1. Up-to and including 1 Cu.M.	HR	500			
	2. Over 1 Cu.M to 2 Cu. M.	HR	400			
	3. Over 2 Cu. M	HR	100			
D302	Tractor (tracked) including bull or angle dozer:					
	1. Up-to and including 150 HP	HR	500			
	2. Over 150 to 200 HP	HR	400			
	3. Over 200 to 250 HP	HR	200			
D303	Tractor with ripper:					
	1. Up-to and including 200 HP	HR	400			
	2. Over 200 to 250 HP	HR	200			
D304	----------etc----------					
	Total for day work: Constructional Plant _____ (Carried forward to day work summary)					

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Appendix-D to Bid

DAY WORK

Summary (Day Work)

		Amount (Rs.)
(I)	Total for day work: Labour	
(II)	Total for day work: Materials	
(III)	Total for day work: Constructional Plant	
	Total for day work (Carried forward to summary page of Bill of Quantities)	

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Appendix-D to Bid

BILL OF QUANTITIES (SAMPLE)

SUMMARY

		■ Amount (Rs.)
Bill No. 1:	Earthworks/Plinth and Foundation	
Bill No. 2:	Culverts and Bridges/Ground Floor	
Bill No. 3:	Subsurface Drains/Internal Water Supply & Sanitary Fittings	
Bill No 4:	Subsurface Drains/ Pipe Laying and Man holes/Internal water Supply and Sanitary Fittings	
Bill No. 5	Tube wells and Pump-houses/Internal Electrification	
Bill No. 6	Miscellaneous Items	
Bill No. 7	External Development	
	Sub-Total of Bills	
	Day work	
	Bid Price	

Note: All Provisional Sums are to be expended in whole or, in part at the direction and discretion of the Engineer in accordance with Sub-Clauses 52.4 and 58.2 of the General Conditions of Contract Part-I.

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Appendix-E to Bid

PROPOSED CONSTRUCTION SCHEDULE

Pursuant to Sub-Clause 8.2 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 in the bar chart (CPM, PERT or any other to be specified herein) 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 programme for completion of the whole of the works and parts of the works may meet procuring agency'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
1)	Whole works	_____ days
2)	Part-A	_____days
3)	Part-B	_____days
4)	_____	_____days
5)	_____	_____days

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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.

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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.]

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Appendix-G to Bid

LIST OF MAJOR EQUIPMENT (SAMPLES)

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

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Appendix-H to Bid

CONSTRUCTION CAMP AND HOUSING FACILITIES

The Contractor in accordance with Sub Clause 6.6 of the Conditions of Contract shall provide description of his construction camp's facilities and staff housing 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, land preparation, etc.).
2. Provision of Services.

    a) Power (expected power load, etc.).
    b) Water (required amount and system proposed).
    c) Sanitation (sewage disposal system, etc.).

3. Construction of Facilities

    a) Contractor's Office. Workshop and Work Areas (areas required and proposed layout, type of construction of buildings, etc.).
    b) Warehouses and Storage Areas (area required, type of construction and layout).
    c) Housing and Staff Facilities (Plans for housing for proposed staff, layout, type of construction, etc.).

4. Construction Equipment Assembly and Preparation (detailed plans for carrying out this activity).

5. Other Items Proposed (Security services, etc.).

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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 (Give Details)	Subcontractor (With Complete Address)
1	2

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Appendix-J to Bid

ESTIMATED PROGRESS PAYMENTS (SAMPLE)

Bidder's estimate of the value of work which would be executed by him during each of the periods stated below, based on his Programme of the works and the Rates in the Bill of Quantities, expressed in Pakistani Rupees:

Quarter/ Year/ Period	Amounts (in thousands)
1	2
Ist Quarter	
2nd Quarter	
3 rd Quarter	
4th Quarter	
5th Quarter	
6th Quarter	
7th Quarter	
8th Quarter	
Bid Price	

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Appendix-K to Bid

ORGANIZATION CHART
FOR THE
SUPERVISORY STAFF AND LABOUR

(To be filled in by the bidder)

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Appendix-L to Bid

(INTEGRITY PACT)

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC; PAYABLE BY CONTRACTORS.
(FOR CONTRACTS WORTH RS. 10.00 MILLION OR MORE)

Contract No. _____ Dated _____
Contract Value: _____
Contract Title: _____

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

Without limiting the generality of the foregoing, [name of Contractor] 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, from Procuring Agency (PA) except that which has been expressly declared pursuant hereto.

[name of Contractor] accepts full responsibility and strict liability 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 PA and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

[name of Contractor] 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 PA under any law, contract or other instrument, be voidable at the option of PA.
Notwithstanding any rights and remedies exercised by PA in this regard, [name of Supplier/Contractor/Consultant] agrees to indemnify PA for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to PA in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by [name of Contractor] 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 PA.

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[Procuring Agency] [Contractor]

FORMS

BID SECURITY
PERFORMANCE SECURITY
CONTRACT AGREEMENT
MOBILIZATION ADVANCE GUARANTEE INDENTURE
BOND FOR SECURED ADVANCE

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BID SECURITY
(Bank Guarantee)

Security Executed on _____
(Date)

Name of Surety (Bank) with Address: _____
(Scheduled Bank in Pakistan)

Name of Principal (Bidder) with Address _____
_____

Penal Sum of Security Rupees. _____ (Rs.) _____)

Bid Reference No. _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the bid and at the request of the said Principal (Bidder) we, the Surety above named, are held and firmly bound unto _____
(hereinafter called the 'Procuring Agency') in the sum stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Bidder hassubmitted the accompanying bid dated _____ for Bid No. _____ for _____ (Particulars of Bid) to the said Procuring Agency; and

WHEREAS, the Procuring Agency has required as a condition for considering said bid that the bidder furnishes a bid security in the above said sum from a Scheduled Bank in Pakistan or from a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan, to the procuring agency, conditioned as under:

1. that the bid security shall remain in force up to and including the date 28 days after the deadline for validity of bids as stated in the Instructions to bidders or as it may be extended by the procuring agency, notice of which extension(s) to the Surety is hereby waived;

2. that the bid security of unsuccessful bidders will be returned by the procuring agency after expiry of its validity or upon signing of the Contract Agreement; and

3. that in the event of failure of the successful bidder to execute the proposed Contract Agreement for such work and furnish the required Performance Security, the entire said sum be paid immediately to the said procuring agency pursuant to Clause 15.6 of the Instruction to bidders for the successful bidder's failure to perform.

NOW THEREFORE, if the successful bidder shall, within the period specified therefore, on the prescribed form presented to him for signature enter into a formal Contract with the said procuring agency in accordance with his bid as accepted and furnish within twenty eight (28) days of his being requested to do so, a Performance Security with good and sufficient surety, as may be required, upon the form prescribed by the said procuring agency for the faithful performance and proper fulfilment of the said Contract or in the event of non-withdrawal of the said bid within the time specified for its validity then this obligation shall be void and of no effect, but otherwise to remain in full force and effect.

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PROVIDED THAT the Surety shall forthwith pay the procuring agency, the said sum upon first written demand of the procuring agency (without cavil or argument) and without requiring the procuring agency to prove or to show grounds or reasons for such demand,notice of which shall be sent by the procuring agency by registered post duly addressed to the Surety at its address given above.

PROVIDED ALSO THAT the procuring agency shall be the sole and final judge for deciding whether the Principal (Bidder) has duly performed his obligations to sign the Contract Agreement and to furnish the requisite Performance Security within the time stated above, or has defaulted in fulfilling said requirements and the Surety shall pay without objection the said sum upon demand from the procuring agency forthwith and without any reference to the Principal (Bidder) or any other person.

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

SURETY (Bank)

WITNESS:

Signature _____

1. _____

Name _____

_____

Title _____

Corporate Secretary (Seal)

Corporate Guarantor (Seal)

2. _____

_____

Name, Title & Address

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FORM OF PERFORMANCE SECURITY
(Bank Guarantee)

Guarantee No._____
Executed on _____
Expiry date _____

[Letter by the Guarantor to the Procuring Agency]

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 agency) 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 agency, 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 hasacceptedthe procuring agency'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 agency, 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.

We, _____ (the Guarantor), waiving all objections anddefenses under the Contract, do hereby irrevocably and independently guarantee to pay to the procuring agency

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without delay upon the procuring agency's first written demand withoutcavil or arguments and without requiring the procuring agency to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the procuring agency'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 Agency's designated Bank & Account Number.

PROVIDED ALSO THAT the procuring agency 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 agency 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:

Signature _____

1. _____

Name _____

_____
Corporate Secretary (Seal)

Title _____

2. _____

_____
Name, Title & Address

_____
Corporate Guarantor (Seal)

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FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of _____ (month)20 _____ between _____
(hereafter called the "Procuring Agency") of the one part and_____ (hereafter called the "Contractor") of the otherpart.
WHEREAS the Procuring Agency 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 witnesseth-- 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 Special 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 agency to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the procuring agency to execute and complete the works and remedy defects therein in conformity and in all respects with the provisions of the contract.

4. Procuring agency 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.

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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 Agency
_____	_____
(Seal)	(Seal)
Signed, Sealed and Delivered in the presence of:	
Witness:	Witness:
_____	_____
(Name, Title and Address)	(Name, Title and Address)

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MG-1

MOBILIZATION ADVANCE GUARANTEE

Bank Guarantee No. _____ Date _____
WHEREAS _____ (hereinafter called the 'Procuring Agency') has entered into aContract for _____
(Particulars of Contract)
With _____ (hereinafter called the "Contractor').

AND WHEREAS, the Procuring Agency has agreed to advance to the Contractor, at theContractor's request, an amount of Rupees _____ (Rs _____)
which amount shall be advanced to the Contractor as per provisions of the Contract.

AND WHEREAS, the Procuring Agency has asked the Contractor to furnish Guarantee to secure the mobilization advance for the performance of his obligations under the said Contract.

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

NOW, THEREFORE, the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above mentioned Contract and if he fails and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the procuring agency for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the procuring agency shall be the sole and final judge, on the part of the Contractor, shall be given by the procuring agency to the Guarantor, and on such first written demand, payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall remain in force until the advance is fully adjusted against payments from the Interim Payment Certificates of the Contractor or until _____
whichever is earlier.
(Date)
The Guarantor's liability under this Guarantee shall not in any case exceed the sum of Rupees _____ (Rs _____).

This Guarantee shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against payments from Interim Payment Certificates of the Contractor provided that the Guarantor agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted.

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GURANTOR

1. Signature _____
2. Name _____
3. Title _____

WITNESS

1. _____

_____
Corporate Secretary (Seal)

2. _____ _____
(Name Title & Address) Corporate Guarantor (Seal)

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INDENTURE FOR SECURED ADVANCES.

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

This INDENTURE made the---------- day of the ---------- 20---------- BETWEEN (hereinafter called "the Contractor" which expression shall where the context so admits or implied be deemed to include his heirs, executors, administrators and assigns) of the one part and THE GOVERNOR OF SINDH (hereinafter called "the Government" of the other part).

WHEREAS by an agreement, dated (hereinafter called the said agreement, the contractor has agreed to perform the under-mentioned works (hereinafter referred to as the said work):-

(Here enter (the description of the works). [1]

AND WHEREAS the contractor has applied to the ---------- for an advance to him of Rupees ---------- (Rs----------) on the security of materials absolutely belonging to him and brought by him to the site of the said works the subject of the said agreement for use in the construction of such of the said works as he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charge) AND WHEREAS the Government has agreed to advance to the Contractor the sum of Rupees, (Rs.----------) on the security of materials the quantities and other particulars of which are detailed in Part II of Running Account Bill (B). the said works signed by the contractor

Fin R.Form.l7.A

On ---------- and on such covenants and conditions as are hereinafter contained and the Government has reserved to itself the option of marking any further advance or advances on the security of other materials brought by the Contractor to the site of the said works.

NOW THIS INDENTURE WTTNESSETH that in pursuance of the saidagreement and in consideration of the sum of Rupees ---------- (Rs. ----------) on or before the execution of these presents paid to the Contractor by the Government (the receipt whereof the Contractor doth hereby acknowledge) and of such further advances (if any) as may be made to him as aforesaid (all of which advances are hereinafter collectively referred to as the said amount) the Contractor doth hereby assign unto the Government the said materials by way of security for the said amount

And doth hereby covenant and agree with the Government and declare ayfollow :-

1. That the said sum of Rupees ---------- RS. ----------) so advanced by the Government to the Contractor as aforesaid and all or any further sum or sums which may be advanced as aforesaid shall be employed by the contractor in or towards expending the execution of the said works and for no other purpose whatsoever.

2. That the materials detailed in the said Running Account Bill (B) which have been offered to and accepted by (he Government as security for the said amount areabsolutely by the

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Contractors own property free from encumbrances of any kind and the Contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the contractor hereby agrees, at all times, to indemnify and save harmless the Government against all claims whatsoever to any materials in respect of which an advance has been made to him as aforesaid.

3. That the said materials detailed in the said Running Account Bill (B) and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereinafter called the said materials) shall be used by the Contractor solely in the execution of the said works in accordance with the directions of the Divisional Officer (hereinafter called the Divisional Officer) and in the terms of the said agreement.

4. That the Contractor shall make at his own cost all necessary and adequate arrangement for the proper watch, safe custody and protection against all risks of the said material and that until used in construction as aforesaid the said materials shall remain at jthe site of the said works in the Contractor's custody and at his own risk and on his own responsibility and shall at all times be open to inspection by (he Divisional Officer or any officer authorized by him. In the event of the said materials of any part (hereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof Contractor will forthwith replace the same with other materials of like qualify or repair and make good the same as required by the Divisional Officer and the materials so brought to replace the said materials so repaired and made good shall also be considered as security for the said amount.

5. 'Hurt the said materials shall not on any account be removed from the site of the said works except with the written permission of the Divisional Officer or an officer authorized by him in that behalf

6. That the said amount shall be payable in full when or before the Contractor receives payment, from the Government of the price payable to him for the said works under the terms and provisions of the said agreement PROVIDED THAT if any intermediate payments are made to the contractor on account of work done then on the occasion of each such payment the Government will be at liberty to make a recovery from the Contractors Bill for such payment by deducting there from in the value of the said materials (hen actually used in the construction and in respect of which recovery has not been made previously the value for this purpose being determined in respect of each description of material at (he rates at which the amount of the advances made under these presents were calculated.

7. at if the Contractor shall at any time make any default in the performance or observation in any respect of any of the terms and provisions of the said agreement or of these presents the total amount of the advance or advances that may still be owing to the Government shall immediately on the happening of such default be repayable by the Contractor to the Government together with interest thereon at twelve percent per annum from the date or respective dates of such advance or advances to the date or repayment and with all costs, charges, damages and expenses incurred by the Government in or for the recovery thereof or theenforcement of this security or otherwise by reason of (he default of the Contractor and any moneys so becoming due and payable shall constitute a debt due from the Contractor to the Government and the Contractor hereby covenants and agrees with the Government to repay and the same respectively to it accordingly.

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8. That the Contractor hereby charges all the said materials with the repayment to the Government of the said sum of Rupees ----------Rs. ----------) and any further sum or sums which may be advanced as aforesaid and all costs charges damages and expenses payable under these present PROVIDED ALWAYS and it is hereby agreed and declared that not, withstanding anything in the said agreement and without prejudice to the powers contained therein if and whether the covenant for payment and repayment hereinbefore contained shall become enforceable and the money owing shall not be paid to accordingly.

   Once there with the Government may at any time thereafter adopt all or any of following courses as it may deem best;-

   a. Seize and utilize the said materials or any part thereof in the completion of the said works on behalf of the Contractor in accordance with the provisions in that behalf contained in the said agreement debiting the Contractor with the actual cost of effecting such completion the amount due in respect of advances under these presents and crediting the Contractor with the value of work done as he had carried it out in accordance with the said agreement and at the rates thereby provided. If the balance is against the Contractor he is to pay the same to the Government on demand.
   b. Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaid repayable to the Government under these presents and pay over the surplus (if any) to the Contractor.
   c. Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.

9. That except as is expressly provided by the presents interest on the said advance shall not be payable.

10. That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been hereinbefore expressly provided for the same shall be referred to the Superintending Engineer/Executive District Officer/Officer one grade higher to officer signed the agreement Circle whose decision shall be finaland the provisions of the Arbitration Act 1940 for the time being in force so far as they are applicable shall apply to any such reference.

Singed, sealed and delivered by*
In the presence of

SEAL

1st Witness
2nd Witness

Singed, sealed and delivered by*
In the presence of

SEAL

1st Witness
2nd Witness

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Notes on the Conditions of Contract

The Conditions of Contract comprise two parts:

(a) Part I - General Conditions of Contract
(b) **Part II - Special 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 (Federation International des Ingenieurs-Conseils, or FIDIC), and is commonly known as the FIDIC Conditions of Contract. (The used version is the harmonized Edition March 2006).

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 procuring agency. 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 civil works will ensure comprehensiveness of coverage, better balance of rights or obligations between procuring agency 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:
To request such permission please contact:
FIDIC CASE POSTALE, CH-1215 Switzerland;
Tel. +41 22 799 49 00;
Fax; +41 22 799 49 01
E-mail: fidic@fidic.org.

SICHN, KARACHI

(SICHN) CIVIL HOSPITAL
MIRPUR KHAS SINDH.

ELECTRICAL, ELV SYSTEM, AIR-CONDITIONING, PLUMBING & ALLIED WORKS
(ISSUED FOR TENDER)

SINDH INSTITUTE OF CHILD
HEALTH AND NEONATOLOGY

LIST OF CONSTRUCTION DRAWINGS

DWG. NO.	DRAWING TITLE
–	TITLE SHEET & COVER PAGE
MEP-00-01	LIST OF DRAWINGS
MEP-00-02	LEGENDS
MEP-00-03	IMPORTANT NOTES
MEP-00-04	IMPORTANT NOTES
MEP-00-05	EARTHING INSTALLATION DETAILS LAYOUT
MEP-00-06	TYPICAL INSTALLATION DETAILS LAYOUT
MEP-00-07	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-08	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-09	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-10	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-11	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-12	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-13	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-14	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-15	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-00-16	SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS
MEP-01-01	LIGHTING LAYOUT (GROUND FLOOR)
MEP-01-02	POWER, VOICE, DATA & HDMI SYSTEM LAYOUT (GROUND FLOOR)
MEP-01-03	SPLIT AC LAYOUT (GROUND FLOOR)
MEP-01-04	IP BASED CCTV SYSTEM LAYOUT (GROUND FLOOR)
MEP-01-05	FIRE ALARM SYSTEM LAYOUT ON CEILING (GROUND FLOOR)
MEP-01-06	EMERGENCY & EXIT SIGN LIGHTING LAYOUT (GROUND FLOOR)
MEP-01-07	ACCESS CONTROL LAYOUT (GROUND FLOOR)
MEP-01-08	MUSIC & SOUND SYSTEM (GROUND FLOOR)
MEP-01-09	EARTHING LAYOUT (GROUND FLOOR)
MEP-02-01	LIGHTING LAYOUT (FIRST FLOOR)
MEP-02-02	POWER, VOICE, DATA & HDMI SYSTEM LAYOUT (FIRST FLOOR)
MEP-02-03	SPLIT AC LAYOUT (FIRST FLOOR)
MEP-02-04	IP BASED CCTV SYSTEM LAYOUT (FIRST FLOOR)
MEP-02-05	FIRE ALARM SYSTEM LAYOUT ON CEILING (FIRST FLOOR)
MEP-02-06	EMERGENCY & EXIT SIGN LIGHTING LAYOUT (FIRST FLOOR)
MEP-02-07	ACCESS CONTROL LAYOUT (FIRST FLOOR
MEP-02-08	MUSIC & SOUND SYSTEM (FIRST FLOOR)
MEP-03-01	LIGHTING LAYOUT (2ND FLOOR)
MEP-03-02	POWER, VOICE, DATA & HDMI SYSTEM LAYOUT (2ND FLOOR)
MEP-03-03	SPLIT AC LAYOUT (2ND FLOOR)
MEP-03-04	IP BASED CCTV SYSTEM LAYOUT (2ND FLOOR))
MEP-03-05	FIRE ALARM SYSTEM LAYOUT ON CEILING (2ND FLOOR))
MEP-03-06	EMERGENCY & EXIT SIGN LIGHTING LAYOUT (2ND FLOOR))
MEP-03-07	ACCESS CONTROL LAYOUT (2ND FLOOR)
MEP-03-08	MUSIC & SOUND SYSTEM (2ND FLOOR))
MEP-04-01	LIGHTING LAYOUT (3RD FLOOR)
MEP-04-02	POWER, VOICE, DATA & HDMI SYSTEM LAYOUT (3RD FLOOR)
MEP-04-03	SPLIT AC LAYOUT (3RD FLOOR)
MEP-04-04	IP BASED CCTV SYSTEM LAYOUT (3RD FLOOR))
MEP-04-05	FIRE ALARM SYSTEM LAYOUT ON CEILING (3RD FLOOR))
MEP-04-06	EMERGENCY & EXIT SIGN LIGHTING LAYOUT (3RD FLOOR))
MEP-04-07	ACCESS CONTROL LAYOUT (3RD FLOOR)
MEP-04-08	MUSIC & SOUND SYSTEM (3RD FLOOR))
MEP-05-01	LIGHTING LAYOUT (ROOF FLOOR)
MEP-05-02	POWER, VOICE, DATA & HDMI SYSTEM LAYOUT (ROOF FLOOR)
MEP-05-03	SPLIT AC LAYOUT (ROOF FLOOR)
MEP-05-04	IP BASED CCTV SYSTEM LAYOUT (ROOF FLOOR)
MEP-05-05	FIRE ALARM SYSTEM LAYOUT ON CEILING (ROOF FLOOR)
MEP-05-06	EMERGENCY & EXIT SIGN LIGHTING LAYOUT (ROOF FLOOR)
MEP-05-07	ACCESS CONTROL LAYOUT (ROOF FLOOR)
MEP-05-08	MUSIC & SOUND SYSTEM (ROOF FLOOR)

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: N.T.S
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE

LIST OF DRAWINGS

DRAWING NO

MEP-00-01

SYMBOL	DESCRIPTION	MOUNTING HEIGHT
LIGHTING		
	LIGHT	
	LIGHT	
	LIGHT	
	LIGHT	
	WALL LIGHT/MIRROR LIGHT/MIRROR BACK LIGHT POINT	AS PER ARCHITECT DETAILS
	LIGHT POINT FOR VANITY & MIRROR	AS PER ARCHITECT DETAILS
	LINEAR LIGHT (5'-3"/5'-6")	CEILING RECESSED/SURFACE
	HANGING LIGHT	CEILING SUSPENDED
	CHANDELIER/DECORATIVE CUSTOMIZED LIGHT	CEILING SUSPENDED
	LED DOWN LIGHT	CEILING RECESSED
SD	SERVICE PANEL FOR AC/MEP SERVICES	ON CEILING/WALL/FLOOR
	TRACK LIGHT	ON CEILING
	STRIP LIGHT / LED T5 LIGHT	RECESSED IN COVED
	24"X24" CEILING FAN WITH REMOTE	CEILING SUSPENDED/RECESSED
	24"X24" CEILING FAN WITH REMOTE	CEILING SUSPENDED/RECESSED
	EXHAUST FAN 12"X12" / 12"ø	WALL/CEILING/GLASS RECESSED
	GUARDIAN LIGHT	WALL RECESSED
	EXHAUST FAN 12"X12" / 12"ø	WALL/CEILING/GLASS RECESSED
E	EMERGENCY LIGHT	CEILING RECESSED
	LED DOWN LIGHT 16/18 WATTS	SURFACE TYPE
	LED RECESSED LIGHT (LINER TYPE) 4'-6"	CEILING RECESSED
	CASSETTE TYPE AIR-CONDITIONING UNIT	CEILING RECESSED
	LED LASER TRACK/RECESSED LASER LIGHT	CEILING RECESSED/TRACK
	CABLE TRAY	HANGING
	HANGING LIGHT	HANGING
EXIT	EXIT SIGN LIGHT	CEILING SURFACE
	GANG SWITCH	1000mm F.F.L
POWER, DATA & VOICE COMMUNICATION		
	1 X INTERNATIONAL SOCKET OUTLET WITH SHUTTER RAW POWER	150/225mm F.F.L
	2 X INTERNATIONAL SOCKET OUTLET WITH SHUTTER RAW POWER	150/225mm F.F.L
	2 X SCHUKO 2 PIN SOCKET OUTLET WITH SHUTTER UPS POWER	150/225mm F.F.L
	1 X SIMPLEX RJ-45 DATA & VOICE OUTLET	150/225mm F.F.L
	1 X SIMPLEX RJ-45 DATA & VOICE OUTLET	ABOVE COUNTER HEIGHT
	1 X DUPLEX RJ-45 DATA & VOICE OUTLET	150/225mm F.F.L
	TELEVISION OUTLETS (RG-6/CAT-6/INTERNATIONAL SOCKET ON UPS)	1000mm F.F.L
	1 X INTERNATIONAL SOCKET OUTLET WITH SHUTTER RAW POWER	ABOVE COUNTER HEIGHT
	PULL BOX	FLOOR RECESSED
	WALL MOUNTED SPLIT UNIT	2100mm F.F.L
	DISTRIBUTION BOARD (DB)	1950mm F.F.L TO TOP OF DB

POWER & LOW CURRENT SYSTEM		
	CCTV CAMERA	WALL MOUNTED
	DOME CAMERA	CEILING SURFACE
NVR	NETWORK VIDEO RECORDER (NVR)	ON RACK
ECP	EARTH CONNECTION POINT (ECP)	ON WALL
	WIFI ROUTER	CEILING SURFACE
	CALL BELL/BELL PUSH BUTTON GATE INTERCOM	ON WALL
	EARTH PIT	IN GROUND/FLUSHED
MH	MAN HOLE	IN GROUND/FLUSHED
TB	TECHNOLOGY BOX	FLOOR RECESSED
TBE	WEATHER PROOF ENCLOSURE (TYPE-E)	FLOOR RECESSED
SD	SMOKE DETECTOR	ON CEILING
	EMERGENCY BUTTON	ON WALL
	SOUNDER WITH FLASHER	ON WALL
FACP	FIRE ALARM CONTROL PANEL (FACP)	RECESSED ON WALL
	WIF	
TEXT / CONDUIT		
S1,S2,S3,.....	INDICATES SWITCH NO. S1,S2,S3, ETC..	
2S/R1	INDICATES 2 NOS. SWITCHES AND CIRCUIT NO. R1	
R1,Y1,B1,.....	INDICATES RED, YELLOW AND BLUE CIRCUIT NOS FOR RAW POWER.	
	CONDUIT RUNNING IN CEILING SLAB	
	CONDUIT RUNNING UNDER FLOOR	
	CONDUIT RUNNING IN WALL	

NOTE:
MOUNTING HEIGHT AS GIVEN ABOVE AS PER SITE CONDITION
TO BE CONFIRMED BY ARCHITECT/CONSULTANT/CLIENT/VENDOR.

Project
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES
SCALE: N.T.S
CHECKED BY: NAEEM KHAN
DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE
LEGENDS

DRAWING NO
MEP-00-02

GENERAL NOTES FOR ENTIRE PROJECT (A)

THE CONTRACTOR SHALL OBSERVE ADHERENCE TO THE GENERAL PROVISION OF THE BUILDING REGULATION AND COMPLIANCE WITH THE FOLLOWING NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH INTERIOR, ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS ETC AND TO BE COORDINATED WITH OTHER SERVICES/WORKS. CHANGES IN THESE DRAWINGS TO BE MADE AS PER FINAL ARCHITECTURAL DRAWINGS. ALL ELECTRICAL POINTS/ROUTES SHALL BE MARKED ON SITE AS PER APPROVED SHOP DRAWINGS OF CONSULTANT FOR ARCHITECT/CONSULTANT/CLIENT REVIEW AND APPROVAL PRIOR TO START EXECUTION ON SITE.
2. ALL WIRING OF LIGHTING AND POWER SHALL BE WITH SINGLE CORE PVC INSULATED WIRES FOR SINGLE PHASE CIRCUIT. THE VOLTAGE GRADE OF WIRE SHALL BE 450/750V. WHERE AS FOR THREE PHASE CIRCUIT IT WILL BE 600/1000 VOLTS.
3. INSPECTION/PULL/JUNCTION BOXES SHALL BE PROVIDED WHERE NECESSARY TO PULL THE WIRES/CABLES CONVENIENTLY THEIR REASONS, THEIR LOCATION SHALL BE HIDDEN & WATER PROOF BUT ACCESSIBLE, AS FAR AS POSSIBLE.
4. SHOP-DRAWINGS OF EACH TRADE WITH COORDINATE CEILING PLAN (CCP) TO BE SUBMITTED FOR CONSULTANT'S APPROVAL BEFORE COMMENCEMENT OF WORK.
5. LOCATION OF OUTLET, FIXTURES, EQUIPMENT AND CONDUIT RUNS ARE SCHEMATIC, EXACT LOCATION TO BE INDICATED ON SHOP DRAWINGS DULY COORDINATED WITH OTHER WORKS/SERVICES ON SITE.
6. ALL UNDERGROUND PVC PIPE/CONDUIT SHALL BE SCHEDULE 'C' CLASS.
7. SWITCHES/SOCKETS ON SEPARATE PHASES SHALL BE INSTALLED IN SEPARATE PIPES & SEPARATE GI BACK BOXES.
8. OUTLET BACK BOXES SHALL BE GI 16-SWG SHEET STEEL POWDER COATED AND COMPRISED OF A SUITABLE BRASS EARTH TERMINAL
9. FINAL CONNECTION TO LIGHT FIXTURE (IN FALSE CEILING) SHALL BE WITH 3-CORE PVC/PVC CABLE OF ADEQUATE SIZE THROUGH 3POLE PVC CONNECTOR.
10. WIRES FOLLOWING COLOUR CODES SHALL BE FOLLOWED
    PHASE RED, YELLOW, BLUE
    NEUTRAL BLACK
    EARTH GREEN, YELLOW/GREEN
11. ONLY ONE LIGHTING OR POWER CIRCUIT SHALL BE RUN IN ONE CONDUIT.
12. ALL EXTERNAL EQUIPMENT SHALL BE WEATHER PROOF TYPE. IP 56 OR IP 65 AS REQUIRED
13. CIRCUITS IN DB(s) ARE TO BE ARRANGED IN SUCH A WAY SO THAT LOAD BALANCING IS ACHIEVED. ALL CIRCUITS CABLES ARE TO BE LABELED AND LOAD DISTRIBUTION SHEET PROVIDED IN DB, AS PER CONSULTANT INSTRUCTIONS
14. SAMPLES OF MATERIAL OR TECHNICAL SUBMITTALS ARE TO BE SUBMITTED FOR APPROVAL BEFORE START OF WORKS.
15. AS BUILTS DRAWINGS (TWO SET SOFT & TWO SET HARD COPIES) ARE BE SUBMITTED.
16. ALL MATERIALS SHALL BE NEW. NO DISCONTINUED MODELS SHALL BE USED.
17. ELECTRICAL INSTALLATIONS SHALL BE SUITABLE FOR 400/230V 50-HZ SUPPLY AS REQUIRED (EXCEPT OTHERWISE STATED) ALL WORKS TO CONFORM TO REQUIREMENTS OF LOCAL ELECTRICAL AUTHORITY AND LATEST IEE REGULATIONS. THE ELECTRICAL INSTALLATIONS SHALL BE COMPLETED IN ALL RESPECT. IT IS CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL/CLEARANCE OF ELECTRICAL INSTALLATIONS FROM ELECTRIC INSPECTOR, GOVERNMENT OF SINDH.
18. THE ENTIRE ELECTRICAL INSTALLATION SHALL ARE PROPERLY EARTH
19. HEIGHT OF ALL WALL OUTLETS SHALL BE AS PER ARCHITECT/CONSULTANT INSTRUCTIONS.
20. CONDUIT UNDER FLOOR SHALL HAVE A MINIMUM DEPTH OF 50mm MEASURED FROM FINISH FLOOR LEVEL TO TOP OF CONDUIT.
21. MINIMUM SIZE OF CONDUIT SHALL BE 25mmØ, UNLESS OTHERWISE INDICATED.
22. THE ELECTRICAL RESISTANCE OF ECC TOGETHER WITH EARTH LEAD AND ELECTRODE SHALL NOT EXCEED ONE OHM. THE CONTRACTOR SHALL OBTAIN INSTRUCTIONS FROM CONSULTANT FOR ANY ADDITIONAL EARTHING ETC.
23. RUNNING LENGTHS SHOWN IN B.O.Q ARE NOT EXACT CONTRACTOR SHALL HAVE TO TAKE MEASUREMENTS FROM AS PER SITE BEFORE PURCHASING THE MATERIAL.
24. CONDUIT AND CABLES TO BE LAID UNDER FLOOR SHALL BE IN COORDINATION WITH OTHERS SERVICES.

GENERAL NOTES FOR ENTIRE PROJECT (B)

1. CONDUIT AND CABLES TO BE LAID UNDER FLOOR SHALL BE IN COORDINATION WITH OTHERS SERVICES.
2. POWER FOR HVAC AND OTHER MECHANICAL EQUIPMENT SHALL BE TERMINATED UP TO MCC/ISOLATOR/BREAKER ONLY. WIRING ONWARD FROM MCC(S). ISOLATOR/BREAKER WILL BE PART OF HVAC/MECHANICAL CONTRACTOR'S SCOPE OF WORKS.
3. All SLEEVES/CORE CUTTINGS/OPENINGS/HANDHOLES/MAINHOLES/PULL BOXES SHALL BE SEALED FROM INSIDES & OUTSIDES WITH A NON-HARDENING WATERTIGHT COMPOUND AFTER THE INSTALLATION OF CABLES AND PIPES AND ALL SLEEVES INTENDED FOR FUTURE USE SHALL LIKEWISE BE SEALED FOR ENTIRE PROJECT.
4. EXISTING POWER CABLES AND DB'S SHALL BE RE-UTILIZED AS PER INSTRUCTIONS OF CONSULTANT. CONTRACTOR SHALL' RESPONSIBLE TO DEVELOP THE EXISTING DB'S ASBUILT DRAWINGS AND SUBMIT WITH SHOP DRAWINGS AS PER PROPOSED DESIGN FOR CONSULTANT APPROVAL FOR MAKING ANY CHANGES IN DB'S & PANEL. EXISTING DB LOCATION RETAINED.
5. CONTRACTOR SHALL RESPONSIBLE TO DEVELOP THE EACH TRADE SHOP DRAWINGS OF MEP WORKS WITH COORDINATED CEILING PLANS, ELECTRICAL, ELV SYSTEMS, AC COPPER PIPE, CONTROL WIRING, DRAIN PIPE, CABLE TRAYS, POWER CABLES ROUTES & AC OUTER UNITS PLACEMENT AND SUBMIT TO CONSULTANT'S OFFICE FOR APPROVAL PRIOR TO START EXECUTION.
6. CONTRACTOR SHALL BOUND TO OBTAIN AND SUBMIT EACH MATERIAL/SAMPLES TO CONSULTANT'S OFFICE AS PER CONTRACT DOCUMENTS FOR APPROVAL PRIOR TO PROCUREMENT AND INSTALLATIONS.
7. CONTRACTOR SHALL RESPONSIBLE TO SUBMIT THE ALL REQUIRED, SHOP DRAWINGS, AS-BUILT DRAWINGS, TEST REPORTS TIMELY BASIS AS PER CONSULTANT INSTRUCTION. OTHERWISE CONTRACTOR BILL WILL NOT ENTERTAIN.
8. CONTRACTOR SHALL RESPONSIBLE AND MAKE SURE ALL ENTIRE BUILDING/PROJECT ELECTRICAL, ELV SYSTEMS, IT NETWORKS, FIRE ALARM, ACCESS CONTROL, CCTV AND ALLIED NETWORKS SHALL BE INTEGRATE, RECONNECT/ENERGIZED AS PER CLIENT REQUIREMENTS INSTRUCTIONS OF CLIENT/VENDOR & CONSULTANT'S.
9. CONTRACTOR SHALL MAKE SURE TO PROVIDE THE ADDITIONAL/EXTRA LENGTH OF ELECTRICAL/ELV SYSTEMS WIRES & CABLES FOR SHIFTING OF RESPECTED POINTS AT THE TIME OF FINALIZATION.
10. ALL CAT-6/CAT-6A/ELV CABLES CABLES SHALL BE ADDITIONALLY DROPPED AT BOTH POINTS (AT LEAST TWO METERS) AS PER INSTRUCTIONS OF VENDOR/CLIENT/CONSULTANT..
11. THE CONTRACTOR SHALL COMPLY WITH THE CURRENT CODES/STANDARDS WITH RESPECT TO ANY MATERIALS OR WORK NOT SPECIFIED IN DETAIL IN THE CONSULTANT'S SPECIFICATIONS OR DRAWINGS AND TAKE PRIOR WRITTEN APPROVALS FROM CONSULTANT.
12. CONTRACTOR SHALL CONFIRM THE POWER SUPPLY (NOS OF ELECTRICAL PHASES) FOR ALL AC UNITS & OTHER EQUIPMENT FROM VENDOR/CLIENT PRIOR TO INSTALLATION OF WIRING/CABLING WORKS
13. ALL ELECTRICAL WORKS CARRIED OUT SHALL COMPLY WITH THE LATEST STANDARD.
14. EACH CIRCUIT SHALL BE TESTED FOR GROUNDS AND SHORTS BY MEANS OF A MEGGER INSULATION RESISTANCE TESTING INSTRUMENT APPLYING A VOLTAGE OF NOT LESS THAN 500V D.C. UPON CIRCUIT UNDER TEST.
15. CABLES FOR ESSENTIAL CIRCUITS SUCH AS EMERGENCY LIGHTING CIRCUITS AND FIRE FIGHTING EQUIPMENT CIRCUITS ETC SHALL NOT BE DRAWN INTO THE SAME CONDUIT, DUCT OR TRUNKING INTENDED FOR NORMAL CIRCUITS AS PER IEE WIRING REGULATION.
16. ALL LIGHTING POINTS SHALL BE PROVIDED WITH CIRCUIT PROTECTIVE CONDUCTORS AND ALL METAL PARTS SHALL BE CONTINUOUSLY EARTHED THROUGHOUT.
17. ALL EARTH TESTS SHALL BE CARRIED OUT WITH A 1000V MEGGER TEST INSTRUMENT AND IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE IEE WIRING REGULATIONS CONTRACTOR SHALL SUBMIT TEST REPORT OF MEAGER TESTING.
18. EQUIPOTENTIAL BONDING SHALL BE PROVIDED IN ALL TOILETS.
19. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE EARTH FAULT AND OVER CURRENT TRIPING DISCRIMINATION BETWEEN THE SWITCHBOARD WITH SELF GENERATION INCOMING FEEDER TO COMPLY WITH THE CONSULTANTS REQUIREMENT.
20. THE ELECTRICAL CONTRACTOR SHALL OBTAIN APPROVAL FROM STRUCTURAL ENGINEERS FOR PENETRATION THROUGH R.C BEAMS/FLOORS/SLABS PRIOR TO CONSTRUCTION.
21. THE CONTRACTOR IS REQUIRED TO SUBMIT DETAILS OF FINAL ARRANGEMENT AND DIMENSIONAL LAYOUT OF ALL ITEMS OF EQUIPMENT IN RESPECTIVE ROOMS TO SUIT SITE CONDITIONS, ETC. FOR REVIEW BY THE ARCHITECT/CONSULTANT BEFORE COMMENCEMENT OF INSTALLATION.

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

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SCALE: N.T.S
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PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE: **IMPORTANT NOTES**

DRAWING NO: MEP-00-03

CABLES AND ANCILLARY PRODUCTS (C)

1. ALL PVC CABLES FOR FINAL SUB-CIRCUIT WIRINGS SHALL BE MULTI-STRAND COPPER CONDUCTORS & INSULATION COLOUR OF THE CABLES SHALL BE AS FOLLOWS :- LIVE WIRES - RED OR YELLOW OR BLUE FOR SINGLE-PHASE CIRCUIT. (TO CORRESPOND TO THE PHASE OF THE SUPPLY) RED, YELLOW, BLUE FOR THREE PHASE CIRCUIT NEUTRAL WIRES - BLACK EARTH WIRE - GREEN & YELLOW
2. SEPARATE CONDUIT/MULTI-GANG SWITCH BOX SHALL BE PROVIDED FOR FINAL SUB-CIRCUIT OF DIFFERENT PHASES. ALSO A SIGN SHALL BE PROVIDED TO INDICATE THE VOLTAGE BETWEEN THEM IN ACCORDANCE WITH BS 7671 CODE OF PRACTICE FOR WIRING OF ELECTRICAL EQUIPMENT OF BUILDING.
3. ALL EXTERNAL/LANDSCAPE LIGHTING POINTS SHALL BE PROVIDED WITH CABLES WITH ADDITIONAL LENGTH OF 5m.
4. SPACE FACTOR OF CONDUIT & TRUNKING SHALL COMPLY WITH BS-7671 CODE OF PRACTICE FOR WIRING OF ELECTRICAL EQUIPMENT OF BUILDINGS.
5. ALL SUB-MAINS CIRCUITS TO BE COMPLETE WITH CIRCUIT PROTECTIVE CONDUCTOR (CPC) COMPLYING TO BS-7671 CODE OF PRACTICE.
6. NEUTRAL & EARTH CABLES FOR EACH DIFFERENT CIRCUIT SHALL BE BROUGHT BACK TO THE SOURCE PANEL AND SHALL NOT BE LOOPED TOGETHER OUTSIDE THE PANEL.
7. ALL ELECTRICAL CONDUITS AND CONDUIT BOXES TO CAST WITHIN R.C. SLAB AT WET AREAS (eg. BATHROOM, WC, KITCHEN, BALCONY & ETC.) MUST HAVE TIGHTLY SEALED AND WATERPROOF JOINTS.
8. ALL UNDERGROUND JUNCTION BOXES SHALL BE OF G.I., TYPE. KNOCK OUT BOXES SHALL NOT BE USED AS UNDERFLOOR JUNCTION BOXES.
9. CONTRACTOR SHALL LIASE WITH ALL TYPE OF EQUIPMENT VENDORS FOR THE EXACT LOCATIONS & MOUNTING HEIGHTS OF THE EQUIPMENT/SYSTEMS SOCKET OUTLETS/ISOLATORS & VENDORS SETTING UP DIMENSIONS
10. CONTRACTOR SHALL ALSO LIAISE WITH INTERIOR DESIGNER/ARCHITECT FOR THE EXACT LOCATIONS & MOUNTING HEIGHTS (IF APPLICABLE) OF SWITCH SOCKET OUTLETS, SWITCHES, DISTRIBUTION BOARDS BEFORE LAYING OF THE CONDUITS.

AIR-CONDITIONING WORKS (D)

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL SERVICES.
2. ALL CONDENSATE DRAINS FROM EACH SPLIT/INDOOR AC UNIT WHETHER SHOWN ON DRAWING OR NOT SHALL RUN WITH A FALL TO THE NEAREST WASTE STACK OR FLOOR DRAIN VIA U-TRAPS.
3. WHERE MORE THAN ONE SERVICE (ELECTRICAL CABLES.DUCT, CH. WATER PIPES) IS ROUTED THROUGH THE SAME AREA. THEY SHALL BE SUPPORTED BY STRUCTURAL FRAME SUPPORT WITH SERVICES STACKED ONE ABOVE THE OTHER.
4. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENT EDITION OF THE FOLLOWING CODES/STANDARDS MECHANICAL, NATIONAL ELECTRIC CODE, NFPA AND ALL LOCAL ORDINANCES.
5. CONDENSATE DRAIN PIPING TO BE AS SPECIFIED PER PLUMBING PLANS, IF NOT SPECIFIED TO BE TYPE "L" COPPER OR PVC WHERE ALLOWED BY CODE WITH INSULATION. PROVIDE APPROVED WATER LEVEL DETECTOR OR FLOAT SWITCH TO AUTOMATICALLY SHUT DOWN THE AIR CONDITIONING UNIT, AS A SECONDARY DRAIN SYSTEM TO COMPLY WITH NCMC 2002, SUPPLY CONDENSATE PUMP WHERE NECESSARY AS IMPOSED BY FIELD CONDITIONS OR INSTALLATION CHANGES AND PIPE TO CONDENSATE DRAIN PER PLUMBING PLANS.
6. PROVIDE ENGRAVED TAGS FOR ALL EQUIPMENTS. MOUNT TAGS PERMANENTLY ON EQUIPMENTS AND ON DISCONNECT.
7. ALL UNITS TO BE SELECTED AT 105F DB AMBIENT TEMPERATURE.
8. ALL UNITS TO BE OPERATE AT 110F WITHOUT BEING TRIP.

MAXIMUM CAPACITY OF PVC / STEEL CONDUITS (F)

mm²	25mm or 1inch	32mm or 1-1/4inch	38mm or 1-1/2inch	50mm or 2inch
1.0	18	30	40	50
1.5	15	25	35	45
2.5	12	20	30	35
4	8	12	20	25
6	6	10	15	20
10	4	6	10	12
16	3	5	7	8
25	2	3	4	6
35	-	2	3	5
50	-	2	2	4

ELECTRICAL DISTRIBUTION BOARDS AND COMPONENTS (E)

1. ALL MCCBs INSTALLED SHALL COMPLETE WITH ADJUSTABLE THERMAL AND MAGNETIC SETTING OF APPROPRIATE RANGE.
2. ALL MCBs USED FOR PROTECTION OF INDUCTION LOADS SHALL BE OF TYPE C CHARACTERISTIC AND MOTOR LOAD SHALL BE OF TYPE D CHARACTERISTIC.
3. PROTECTING MOTOR CIRCUITS FOR PUMPS, FANS, AHU's, ETC. SHALL BE OF THE TYPE SUITABLE FOR MOTOR PROTECTION INCORPORATING OVERLOAD AND SHORT CIRCUIT PROTECTIVE DEVICES (ALSO EARTH FAULT PROTECTION WHERE SHOWN IN THE DRAWINGS) AND THEY SHALL BE SO SELECTED THAT THEY ARE ABLE TO COORDINATE WITH BOTH THE UPSTREAM AND DOWNSTREAM PROTECTION DEVICES.
4. ALL PROTECTION CTs SHALL BE OF CLASS 5P10 15VA OR BETTER.
5. ALL METERING CTs SHALL BE OF CLASS 1.0 5VA OR BETTER.
6. BUSBAR MARKINGS, ARRANGEMENTS, CONNECTIONS AND GRADE OF COPPER SHALL COMPLY AS APPROPRIATE WITH BS-159, 1433 AND 1977.
7. ALL ELECTRICAL BOARDS BUSBARS SHALL BE OF HARD DRAWN IMPORTED TINNED COPPER AND SHALL HAVE A CURRENT DENSITY OF NOT LESS THAN 1.55A/SQ.MM. WHEN MORE THAN ONE SET OF BUSBARS ARE USED PER PHASE, APPROPRIATE DE-RATING FACTOR SHALL APPLY.
8. ALL BUSBAR TRUNKINGS SHALL BE OF FULL SIZE NEUTRAL WITH CONTINUOUS INTEGRAL EARTHING BAR SHALL BE IMPORTED AND
9. SUFFICIENT FOR PRESENT AND FUTURE ASPECT LOADS.
10. ALL NON-CURRENT CARRYING METALLIC PARTS OF THE DISTRIBUTION BOARDS SHALL BE BONDED TO SYSTEM EARTH.
11. THERE SHALL BE A COMMON EARTH BAR IN EACH DISTRIBUTION BOARD.
12. THE NEUTRAL LINKS AND EARTH BARS IN THE DISTRIBUTION BOARDS SHALL BE LOCATED AT AN EASILY ACCESSIBLE POSITION AND SHALL BE KEPT CLEAR OF ANY OBSTRUCTIONS.
13. NEUTRAL AND EARTH BARS SHALL HAVE SUFFICIENT NUMBER OF WAYS TO MATCH THE NUMBER OF SUB-CIRCUITS WITH SPARES.
14. THE MINIMUM CLEARANCE AROUND THE NEUTRAL LINKS SHALL BE 50mm.
15. THE CONTRACTOR IS REQUIRED TO CARRY OUT HIS OWN FAULT LEVEL CALCULATIONS BASING ON THE CHARACTERISTICS OF THE EQUIPMENT OFFERED AND THE ACTUAL/AGREED ROUTING (SUBJECT TO THE CONSULTANT APPROVAL) OF THE CABLES AND THEREAFTER SELECT THE MOST APPROPRIATE RUPTURING CAPACITY OF SUB-SWITCHBOARDS, BUSBAR TRUNKING AND DISTRIBUTION BOARDS TO MEET THE PROSPECTIVE FAULT LEVELS. ALL COSTS IN CONNECTION THEREWITH SHALL BE DEEMED TO BE INCLUDED IN THE CONTRACT SUM.
16. ALL ELECTRICAL EQUIPMENT AND ACCESSORIES THAT ARE EXPOSED TO WEATHER SHALL BE OF WEATHERPROOF TYPE TO IP65, UNLESS OTHERWISE STATED.
17. ALL PRIVATE OR IN-HOUSE METERS PARTICULARLY kWH AND MD METERS SHALL BE PROPERLY CALIBRATED ON SITE BY ACCEPTABLE LABORATORY TEST EQUIPMENT. ALL COSTS CONNECTED THEREWITH SHALL BE DEEMED TO BE INCLUDED IN THE CONTRACT SUM.
18. IDMTL OVERCURRENT AND EARTH FAULT RELAYS SPECIFIED SHALL BE COMPLETE WITH HIGH SET ELEMENT. FOR HV INSTALLATION FEEDER PROTECTION, THE HIGH SET ELEMENT FOR IDMTL OVERCURRENT RELAY SHALL BE OMITTED.
19. ALL OVERCURRENT, EARTH FAULT RELAYS AND EARTH LEAKAGE RELAYS SHALL BE TESTED ON SITE BY K-ELECTRIC LICENSED TESTER AND ALL COSTS CONNECTED THEREWITH SHALL BE DEEM TO BE INCLUDED IN THE CONTRACT SUM.
20. HRC FUSES FOR TAP-OFF UNITS (WHERE APPLICABLE) MUST BE IN ACCORDANCE WITH BRITISH STANDARD AND OF THE TYPE READILY AVAILABLE LOCALLY. HRC FUSES TO OTHER STANDARD WILL NOT BE ACCEPTED.
21. THE 4 POLE AUTOMATIC TRANSFER SWITCHES SHALL NOT HAVE A NEUTRAL POSITION OR HAVE BOTH THE NORMAL AND EMERGENCY CONTACTS CLOSED AT THE SAME TIME.
22. TERMINATION OF BUSBARS TO THE GENERATOR TERMINALS SHALL BE CARRIED OUT BY MEANS OF PROPRIETARY MAKE FLEXIBLE CONNECTION OF EQUAL RATING TO THE BUSBARS.
23. THE CONTRACTOR IS REQUIRED TO SUBMIT DETAILS OF FINAL ARRANGEMENT AND DIMENSIONAL LAYOUT OF ALL THE ITEMS OF EQUIPMENT IN RESPECTIVE ROOMS TO SUIT SITE CONDITIONS, ETC FOR REVIEW BY THE ARCHITECT/CONSULTANT BEFORE COMMENCEMENT OF INSTALLATION.
24. UNLESS OTHERWISE INDICATED, THE MCCBs/MCBs INSTALLED FOR ANY MAIN SWITCHBOARDS, SUB-BOARDS AND DISTRIBUTION BOARDS SHALL HAVE THE FOLLOWING MINIMUM BREAKING CAPACITY: MAIN SWITCHBOARD (30/36kA RMS, SEC). SUB BOARDS
25. (18/25kA RMS. 3 SEC). DISTRIBUTION BOARDS (10kA RMS. 24 MCB's RATED < 100A PROTECTING CABLES SUPPLYING LOADS WITH HIGH SWITCH-ON CURRENT (E.G. MOTORS, HID LAMPS, ETC.) SHALL HAVE TYPE 'C' MAGNETIC CURVE RATING UNLESS OTHERWISE INDICATED IN THE DB SCHEDULE/SHOP DRAWINGS UNLESS OTHERWISE STATED, ALL BUSBAR ARE OF HD COPPER AND SHALL BE RATED AT A CURRENT DENSITY OF NO MORE THAN 1000A/645 sq. mm.
26. ALL SWITCHBOARDS AND DISTRIBUTION BOARDS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST STANDARD AND TO THE APPROVAL OF CONSULTANT. THEY SHALL BE PAINTED WITH A COAT OF ANTI-RUST PAINT AND TWO COATS OF SEMI-GLOSS TEAK PAINT OF BEST QUALITY TO THE APPROVAL OF THE ARCHITECT/CONSULTANT.

Project

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SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

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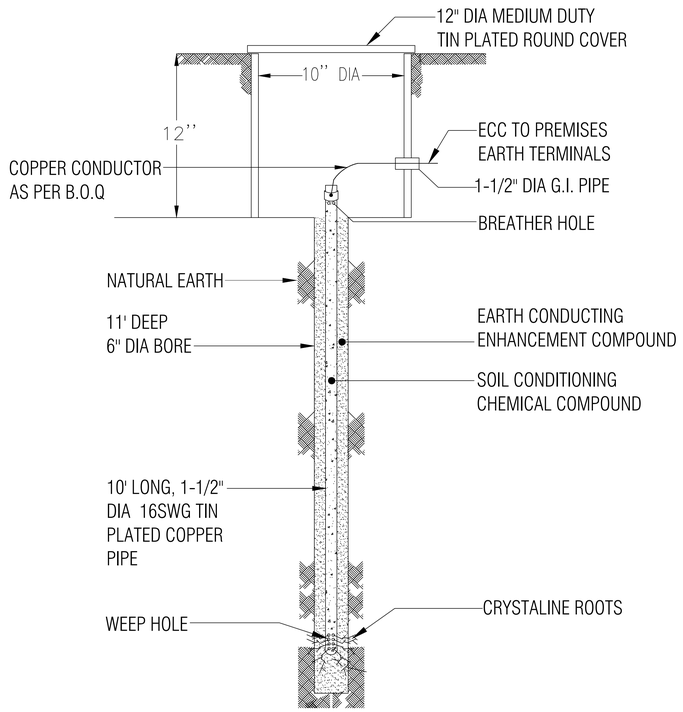
CHECKED BY: NAEEM KHAN | DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED | JOB NO: ZAE-0825/12

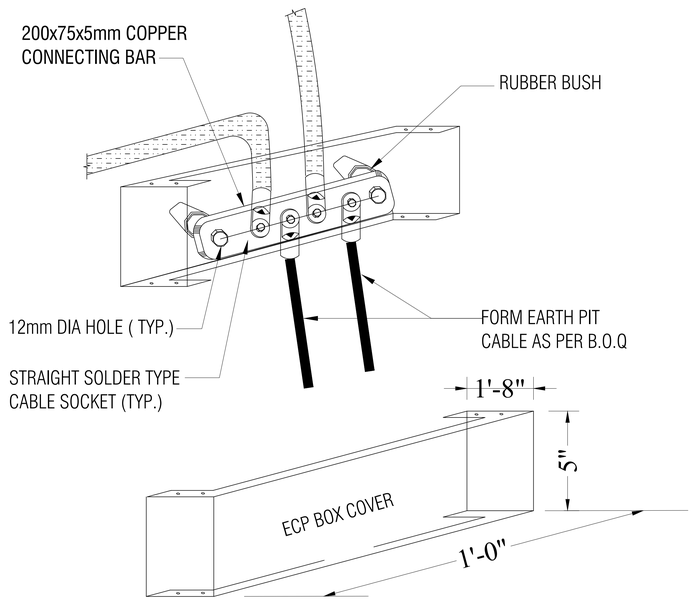
TITLE: **IMPORTANT NOTES**

DRAWING NO: MEP-00-04

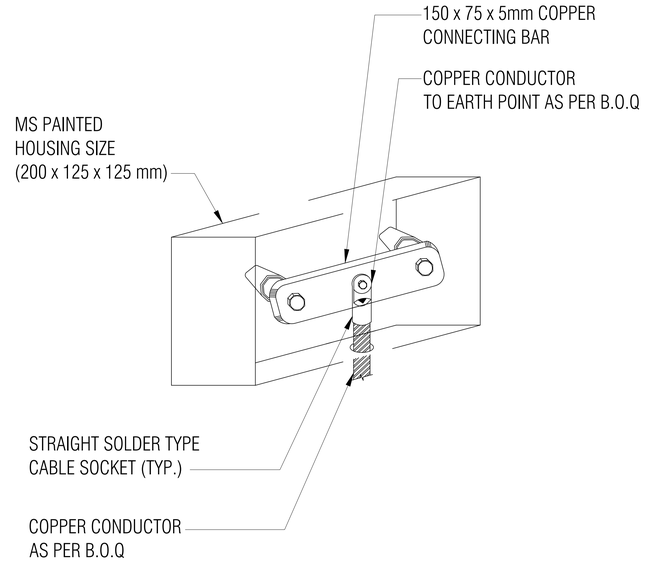
DETAIL-01 ACTIVE GREEN EARTH



DETAIL-02 EARTH CONNECTING POINT



DETAIL-03 EARTH TEST POINT



REFER LIST OF APPROVED BRANDS/MANUFACTURERS/SUPPLIERS.

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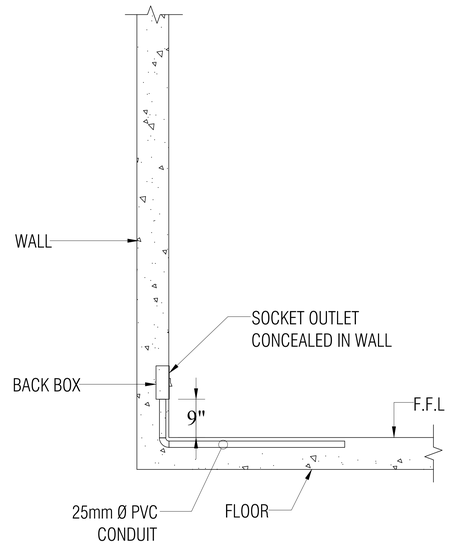
TITLE

EARTHING INSTALLATION DETAILS LAYOUT

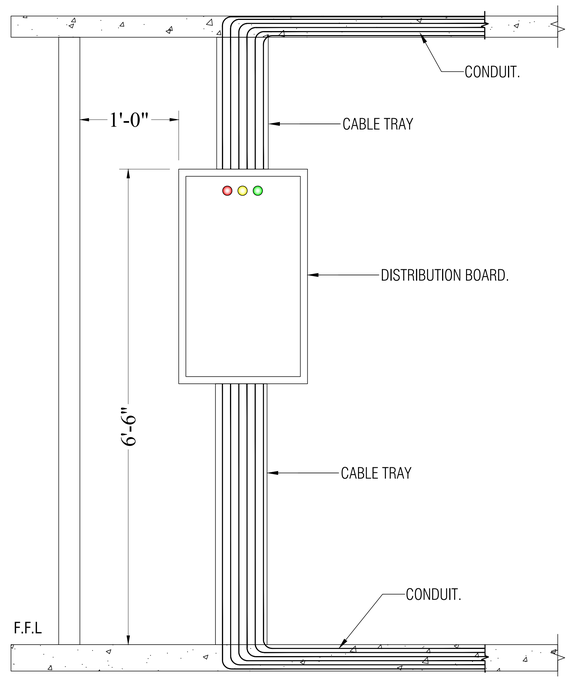
DRAWING NO

MEP-00-05

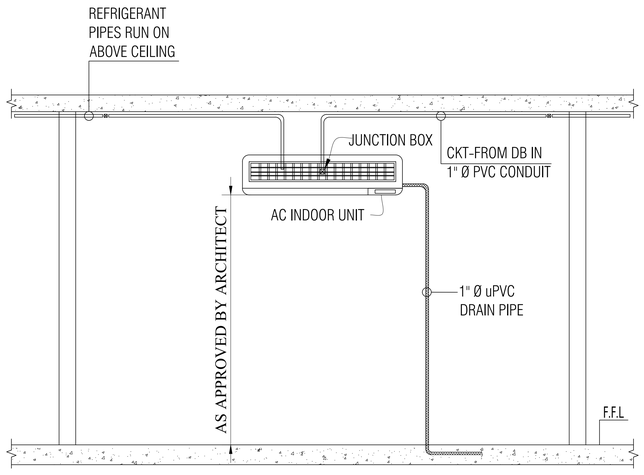
DETAIL-04 SOCKET OUTLETS



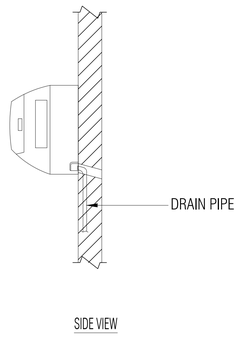
DETAIL-05 MOUNTING HEIGHT DISTRIBUTION BOARD



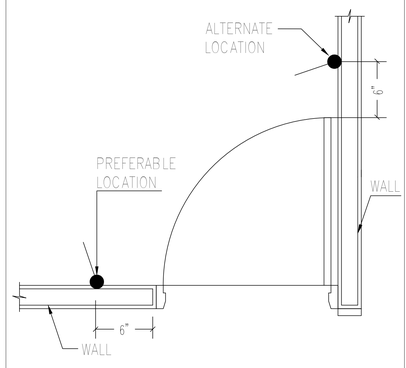
DETAIL-06 A/C INSTALLATION



DETAIL-07 A/C UNIT SIDE VIEW



DETAIL-08 SWITCH LOCATION



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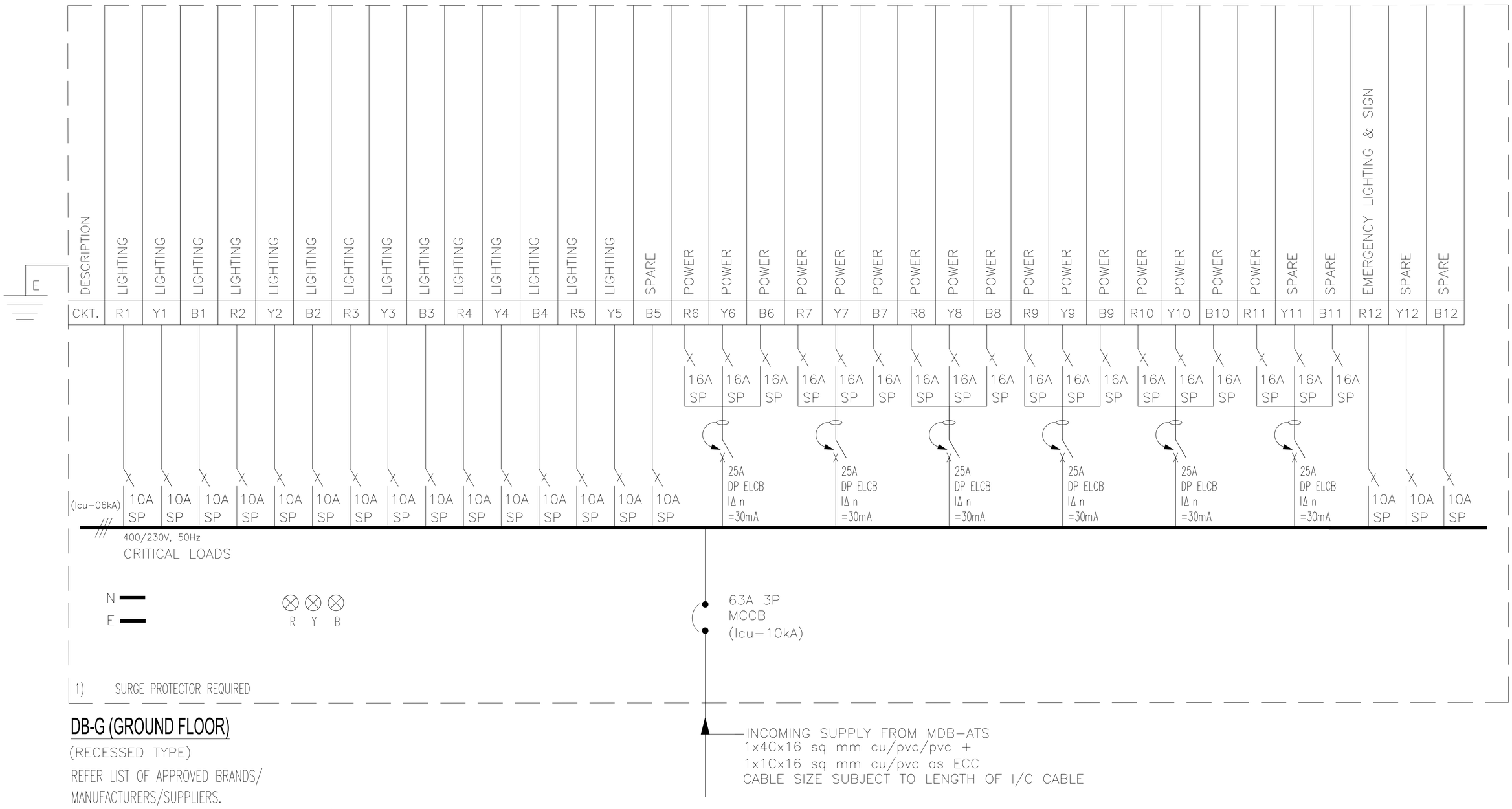
TYPICAL INSTALLATION DETAILS LAYOUT

DRAWING NO

MEP-00-06



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SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS

DRAWING NO

MEP-00-07

CKT.	DESCRIPTION	(Icu–06kA)
R1	WALL MOUNTED SPLIT AC UNIT	16A SP
Y1	WALL MOUNTED SPLIT AC UNIT	16A SP
B1	WALL MOUNTED SPLIT AC UNIT	16A SP
R2	WALL MOUNTED SPLIT AC UNIT	16A SP
Y2	WALL MOUNTED SPLIT AC UNIT	16A SP
B2	WALL MOUNTED SPLIT AC UNIT	16A SP
R3	WALL MOUNTED SPLIT AC UNIT	25A SP
Y3	WALL MOUNTED SPLIT AC UNIT	25A SP
B3	WALL MOUNTED SPLIT AC UNIT	25A SP
R4	WALL MOUNTED SPLIT AC UNIT	25A SP
Y4	WALL MOUNTED SPLIT AC UNIT	16A SP
B4	WALL MOUNTED SPLIT AC UNIT	25A SP
R5	WALL MOUNTED SPLIT AC UNIT	25A SP
Y5	WALL MOUNTED SPLIT AC UNIT	16A SP
B5	WALL MOUNTED SPLIT AC UNIT	25A SP
R6	WALL MOUNTED SPLIT AC UNIT	25A SP
Y6	WALL MOUNTED SPLIT AC UNIT	20A SP
B6	WALL MOUNTED SPLIT AC UNIT	20A SP
R7	WALL MOUNTED SPLIT AC UNIT	25A SP
Y7	WALL MOUNTED SPLIT AC UNIT	16A SP
B7	WALL MOUNTED SPLIT AC UNIT	20A SP
R8	WALL MOUNTED SPLIT AC UNIT	25A SP
Y8	WALL MOUNTED SPLIT AC UNIT	16A SP
B8	WALL MOUNTED SPLIT AC UNIT	25A SP
R9	WALL MOUNTED SPLIT AC UNIT	25A SP
Y9	WALL MOUNTED SPLIT AC UNIT	16A SP
B9	WALL MOUNTED SPLIT AC UNIT	16A SP
R10	WALL MOUNTED SPLIT AC UNIT	25A SP
Y10	SPARE	20A SP
B10	SPARE	20A SP

400/230V, 50Hz

CRITICAL LOADS

N

E

R Y B

63A 3P
MCCB
(Icu–10kA)

1) SURGE PROTECTOR REQUIRED

INCOMING SUPPLY FROM MDB–ATS
1x4Cx16 sq mm cu/pvc/pvc +
1x1Cx16 sq mm cu/pvc as ECC
CABLE SIZE SUBJECT TO LENGTH OF I/C CABLE

DB-G A/C (GROUND FLOOR)

(RECESSED TYPE)

REFER LIST OF APPROVED BRANDS/
MANUFACTURERS/SUPPLIERS.

SHOP DRAWINGS REQUIRED

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

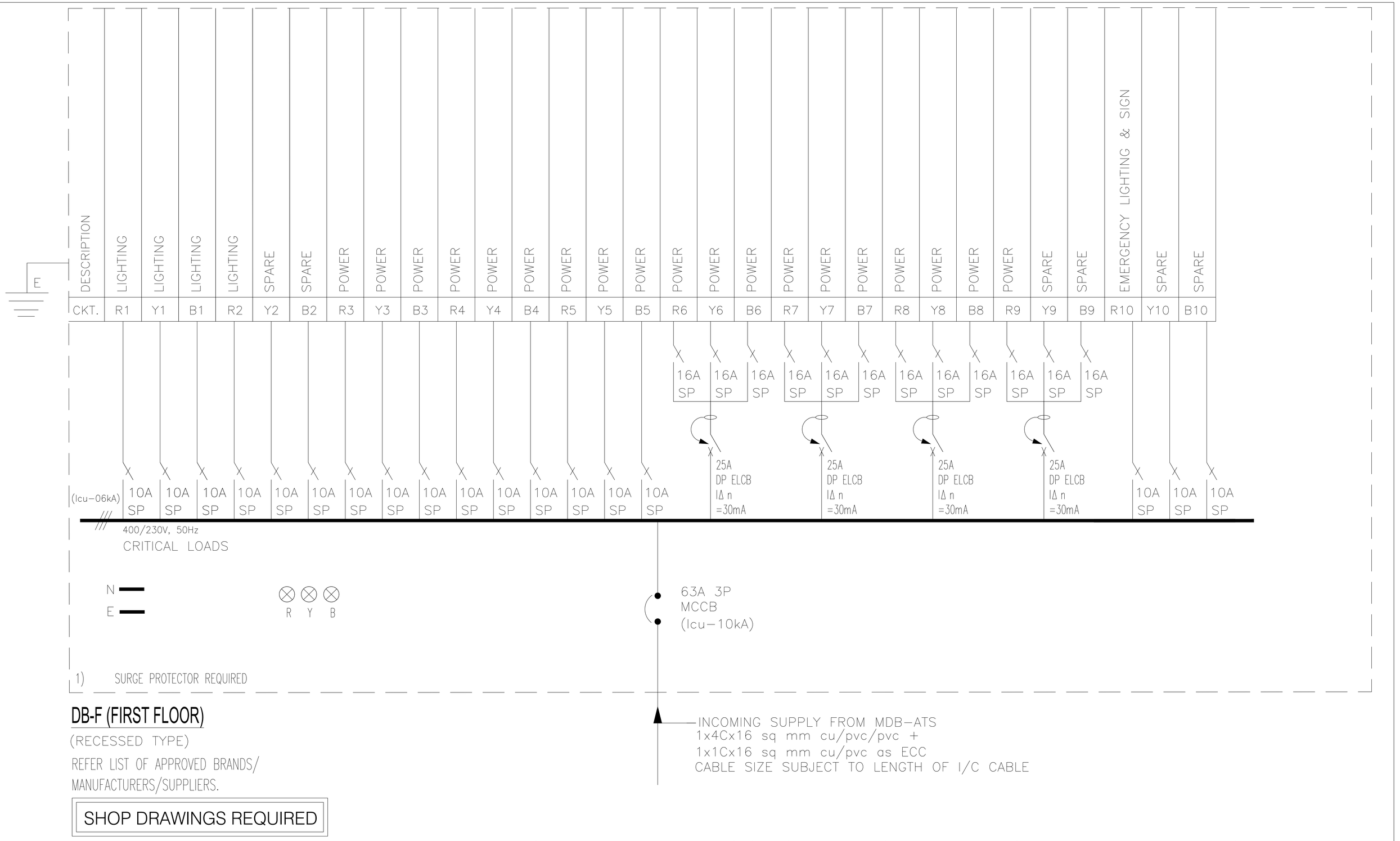
DRAWN BY: SALMAN SAEES
SCALE: N.T.S
CHECKED BY: NAEEM KHAN
DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE

SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS

DRAWING NO

MEP-00-08



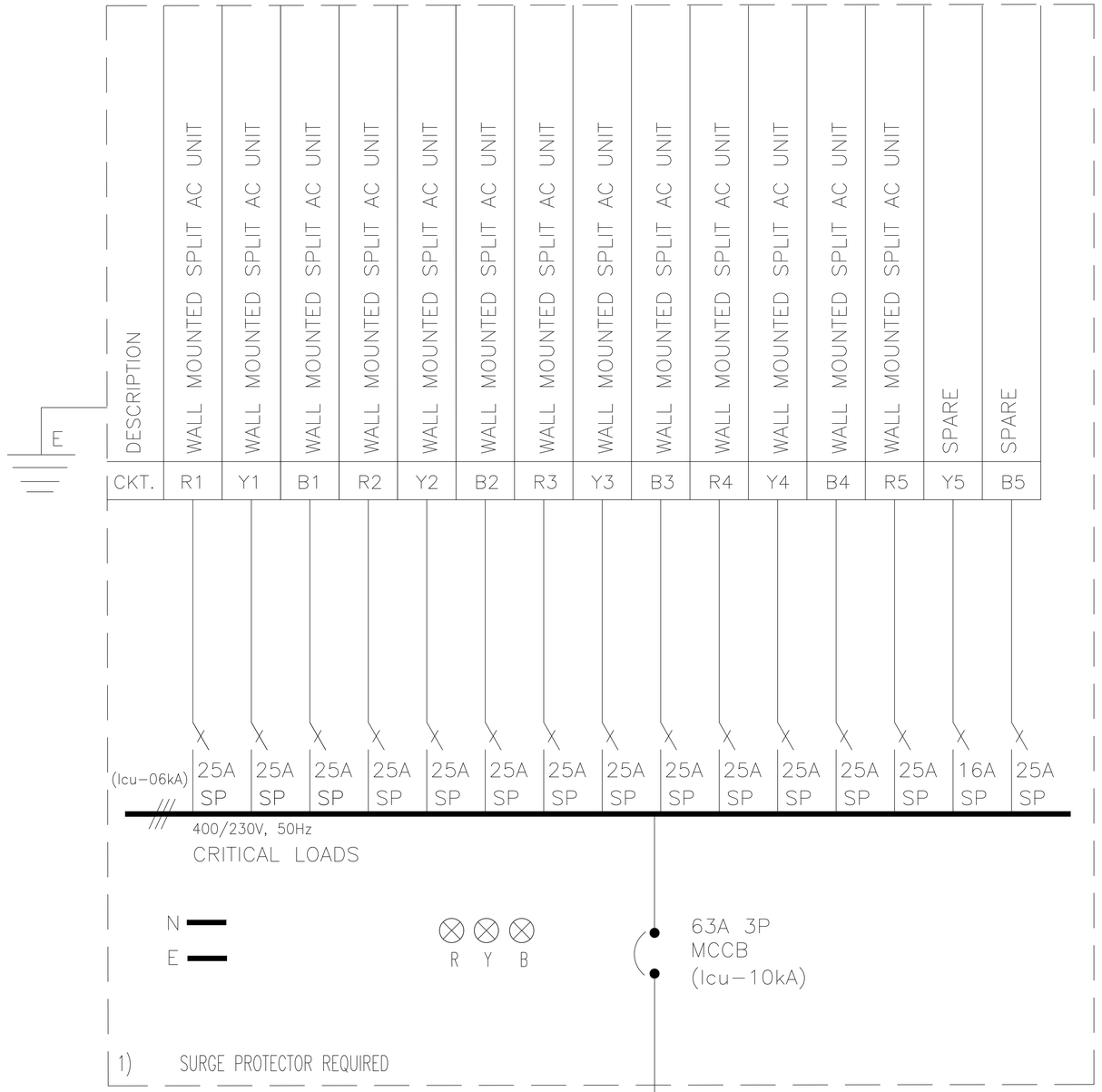
Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: N.T.S	TITLE: **SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS**	DRAWING NO: MEP-00-09
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		



Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

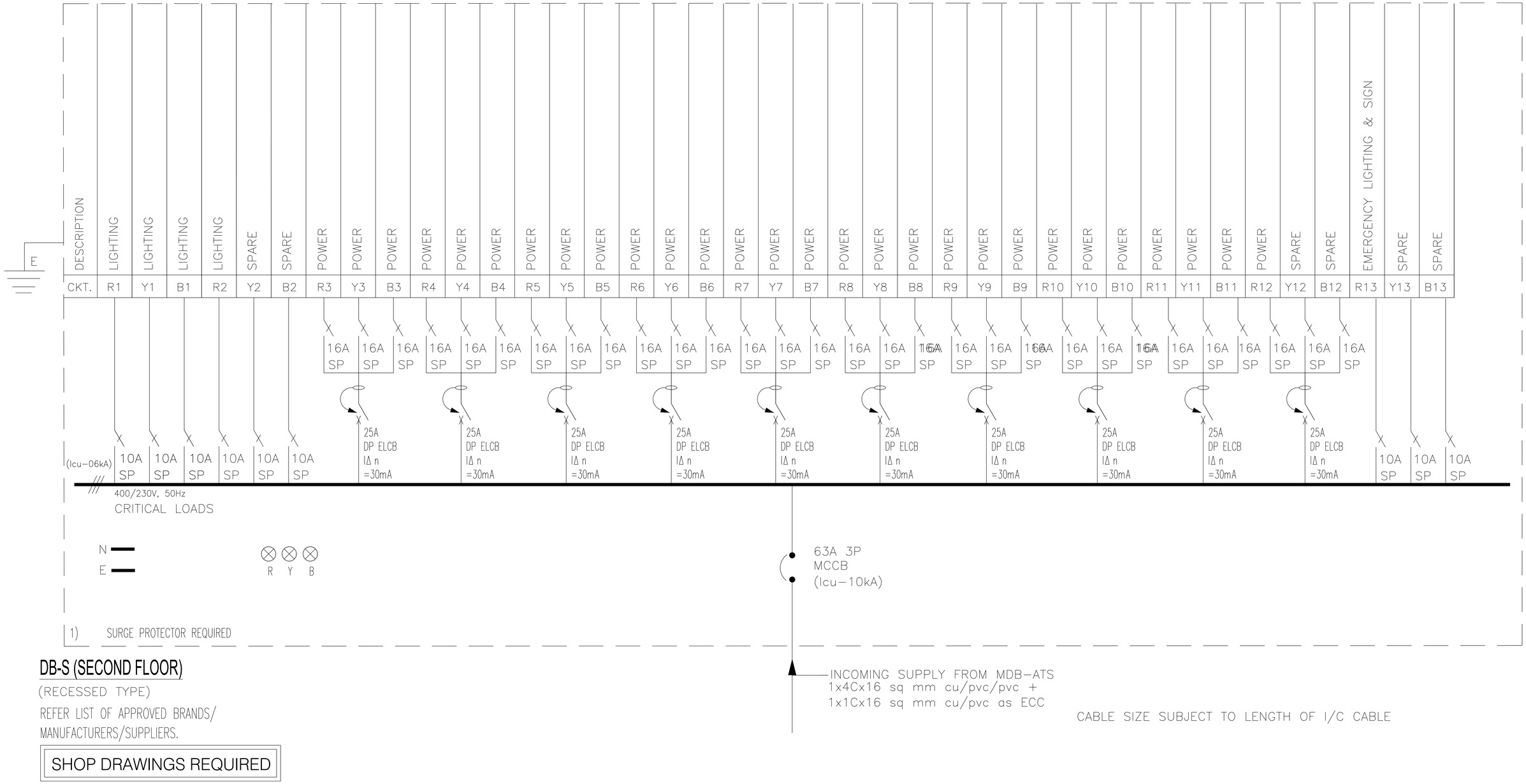
SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES | SCALE: N.T.S
CHECKED BY: NAEEM KHAN | DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED | JOB NO: ZAE-0825/12

TITLE
SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS

DRAWING NO
MEP-00-10



DB-S (SECOND FLOOR)

(RECESSED TYPE)

REFER LIST OF APPROVED BRANDS/ MANUFACTURERS/SUPPLIERS.

SHOP DRAWINGS REQUIRED

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES

SCALE: N.T.S

CHECKED BY: NAEEM KHAN

DATE: 03-OCT-2025

PRINCIPAL ENGR: ZUBAIR AHMED

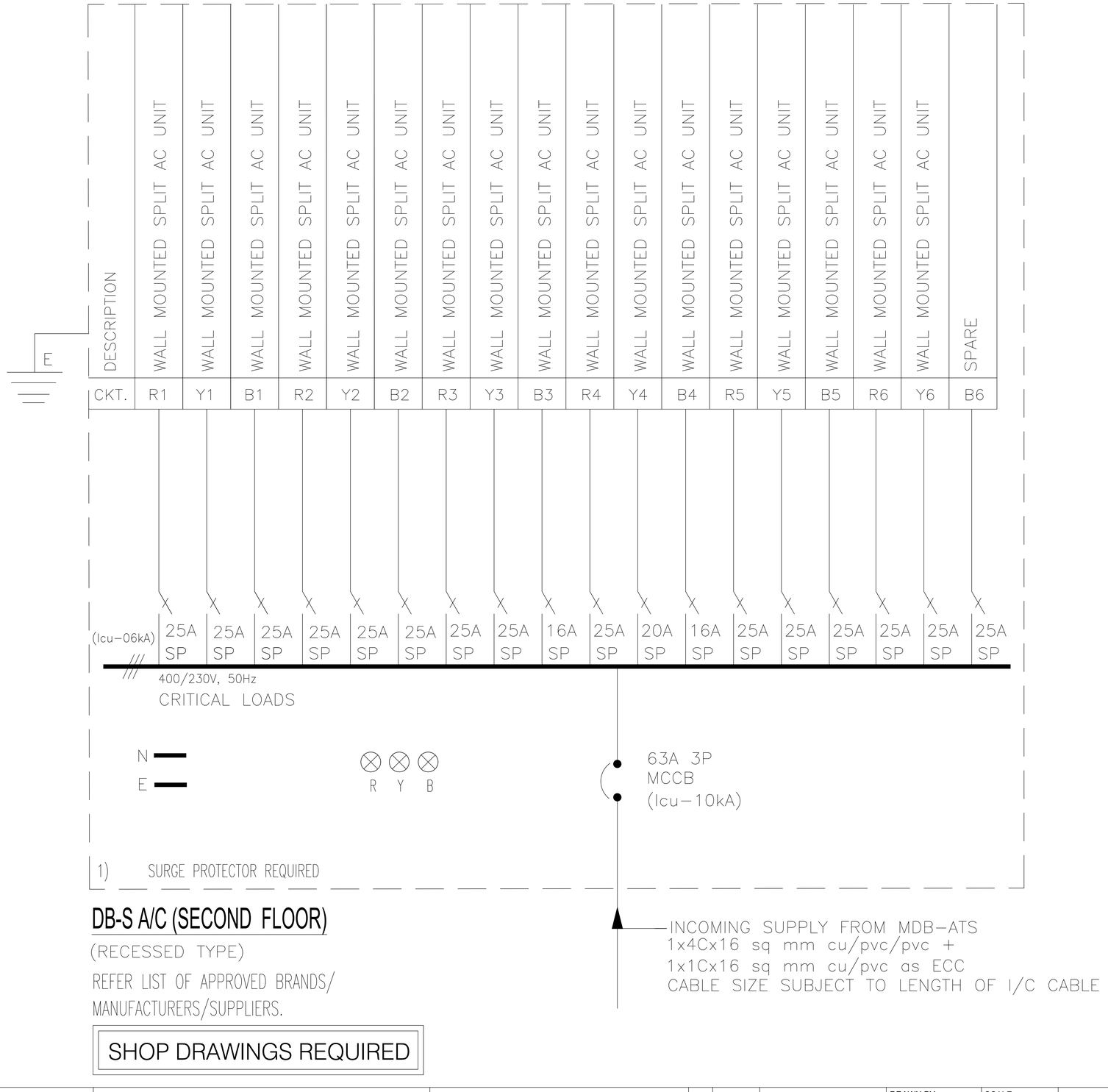
JOB NO: ZAE-0825/12

TITLE

SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS

DRAWING NO

MEP-00-11



Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

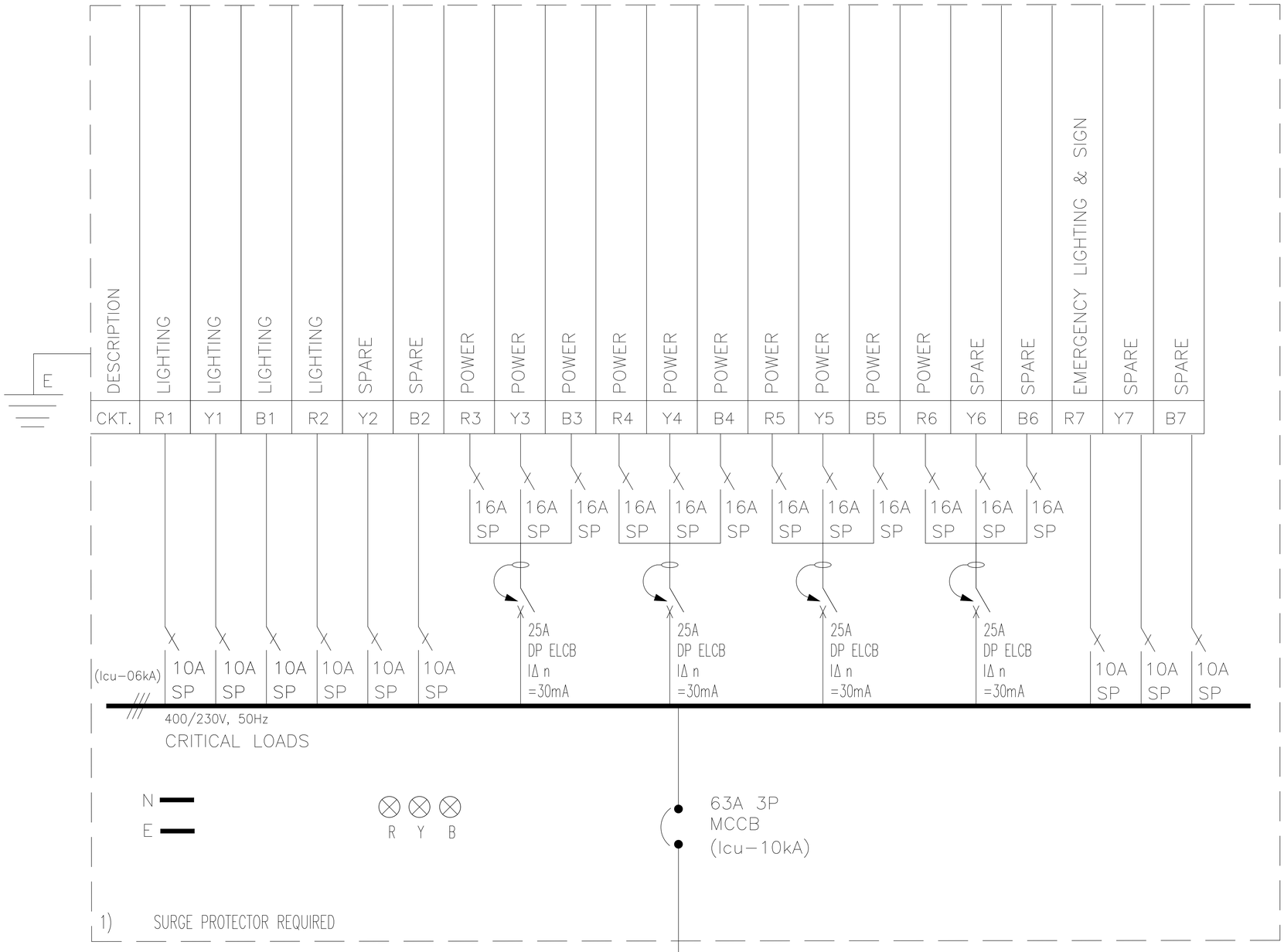
SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES
SCALE: N.T.S
CHECKED BY: NAEEM KHAN
DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE
SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS

DRAWING NO
MEP-00-12



DB-T (THIRD FLOOR)

(RECESSED TYPE)

REFER LIST OF APPROVED BRANDS/ MANUFACTURERS/SUPPLIERS.

SHOP DRAWINGS REQUIRED

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES | SCALE: N.T.S

CHECKED BY: NAEEM KHAN | DATE: 03-OCT-2025

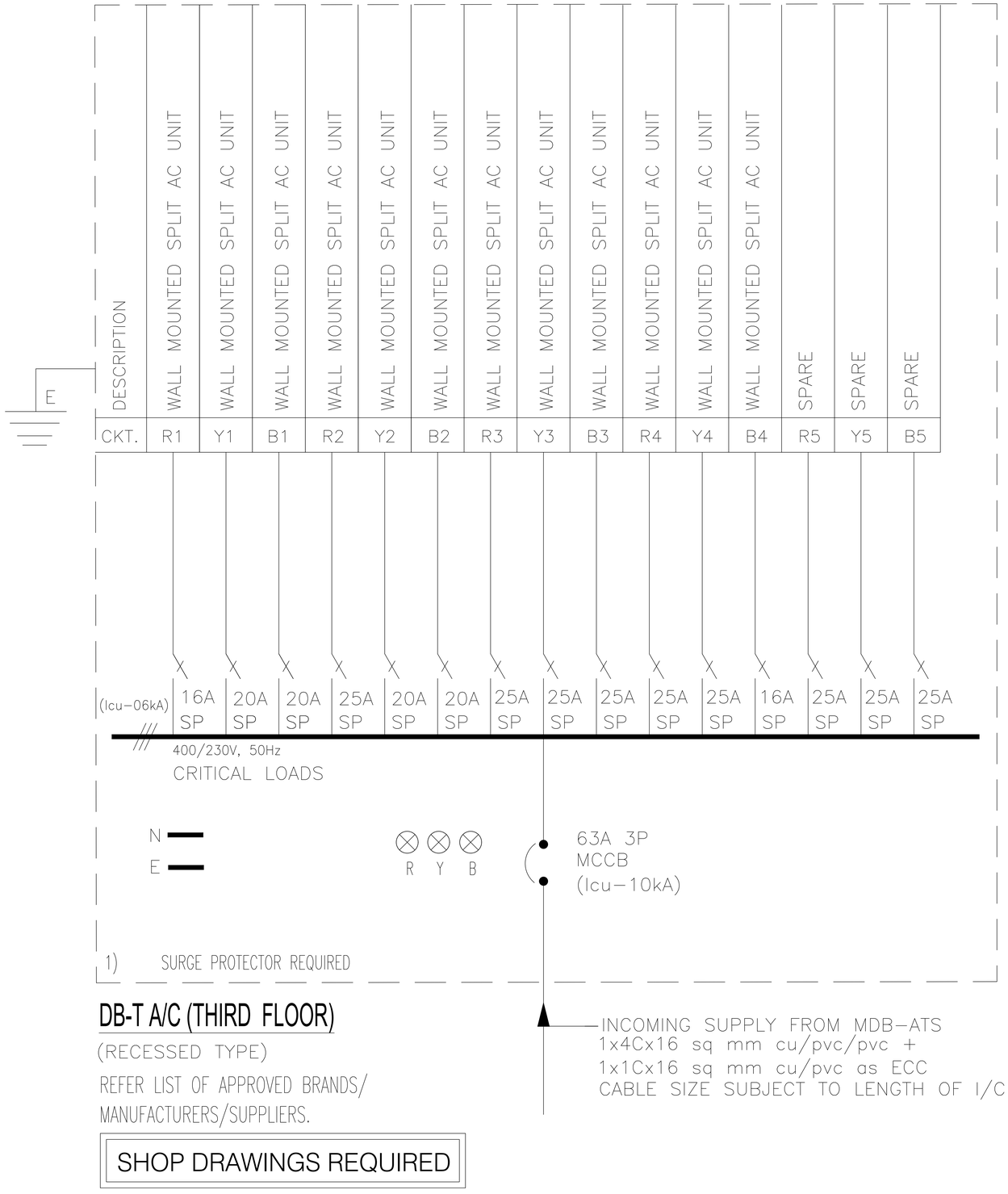
PRINCIPAL ENGR: ZUBAIR AHMED | JOB NO: ZAE-0825/12

TITLE

SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS

DRAWING NO

MEP-00-13



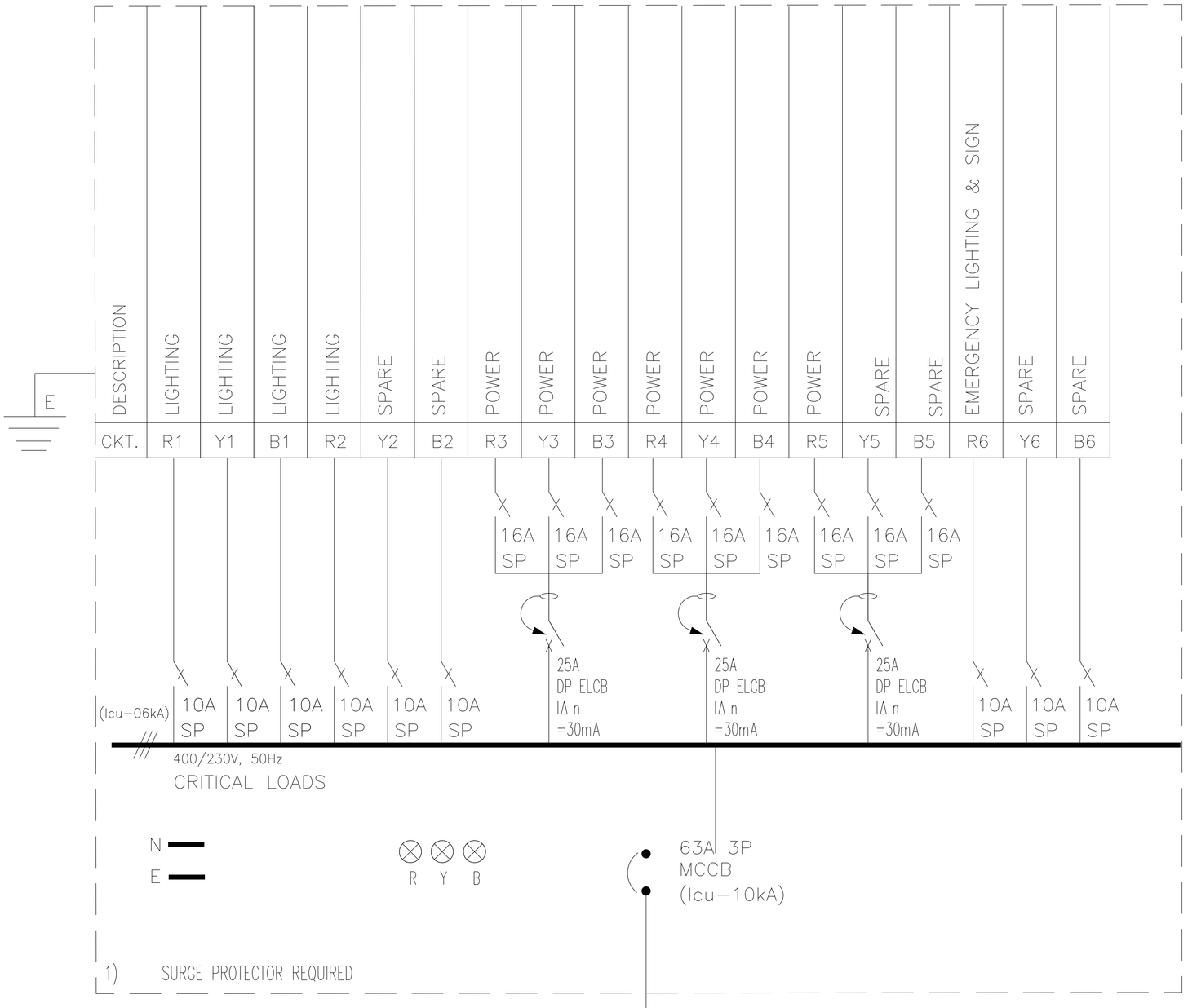
Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: N.T.S	TITLE: **SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS**	DRAWING NO: MEP-00-14
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		



DB-R (ROOF FLOOR)

(RECESSED TYPE)

REFER LIST OF APPROVED BRANDS/ MANUFACTURERS/SUPPLIERS.

SHOP DRAWINGS REQUIRED

INCOMING SUPPLY FROM MDB-ATS
1x4Cx16 sq mm cu/pvc/pvc +
1x1Cx16 sq mm cu/pvc as ECC
CABLE SIZE SUBJECT TO LENGTH OF I/C CABLE

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

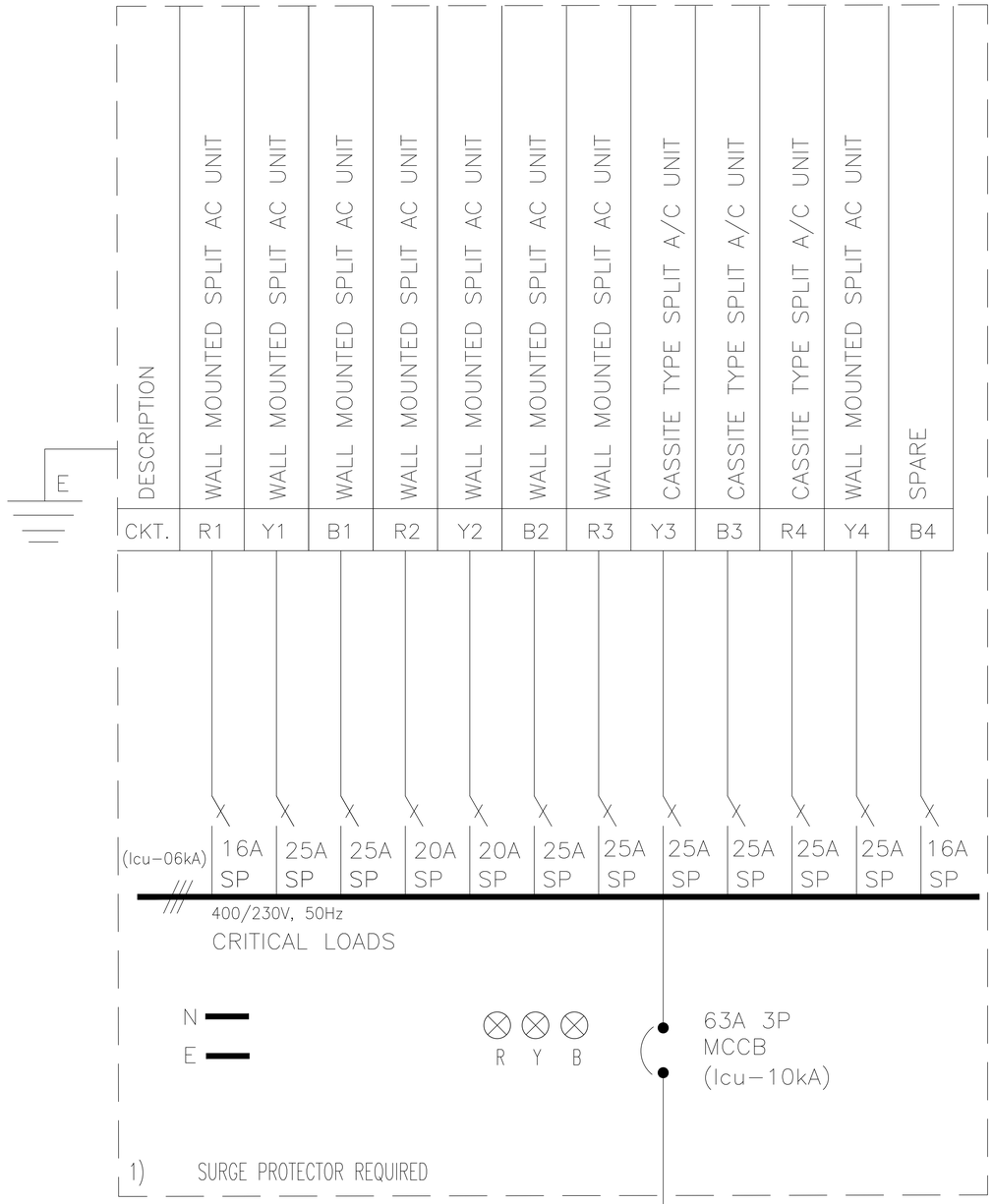
DRAWN BY: SALMAN SAEES | SCALE: N.T.S
CHECKED BY: NAEEM KHAN | DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED | JOB NO: ZAE-0825/12

TITLE

SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS

DRAWING NO

MEP-00-15



Project

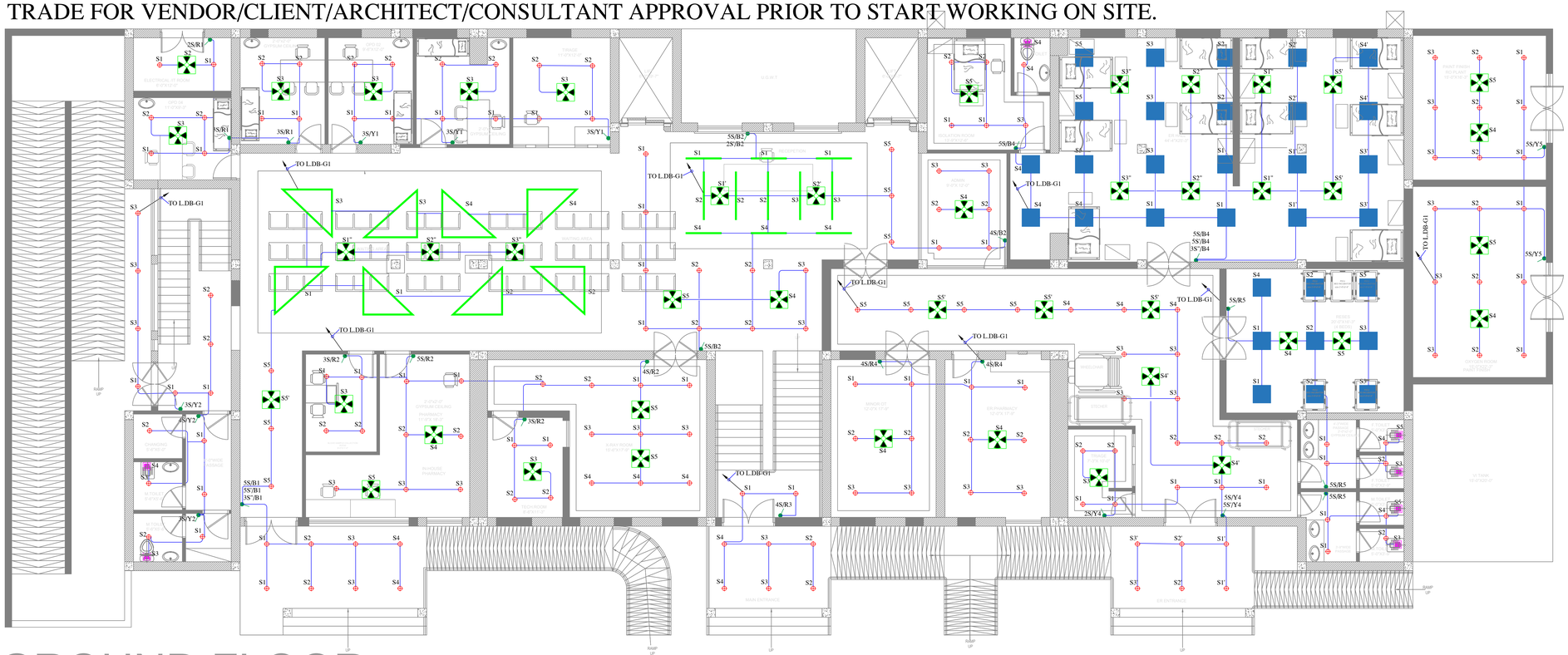
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: N.T.S	TITLE: **SINGLE LINE DIAGRAM OF DISTRIBUTION BOARDS & PANELS**	DRAWING NO: MEP-00-16
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project		
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	

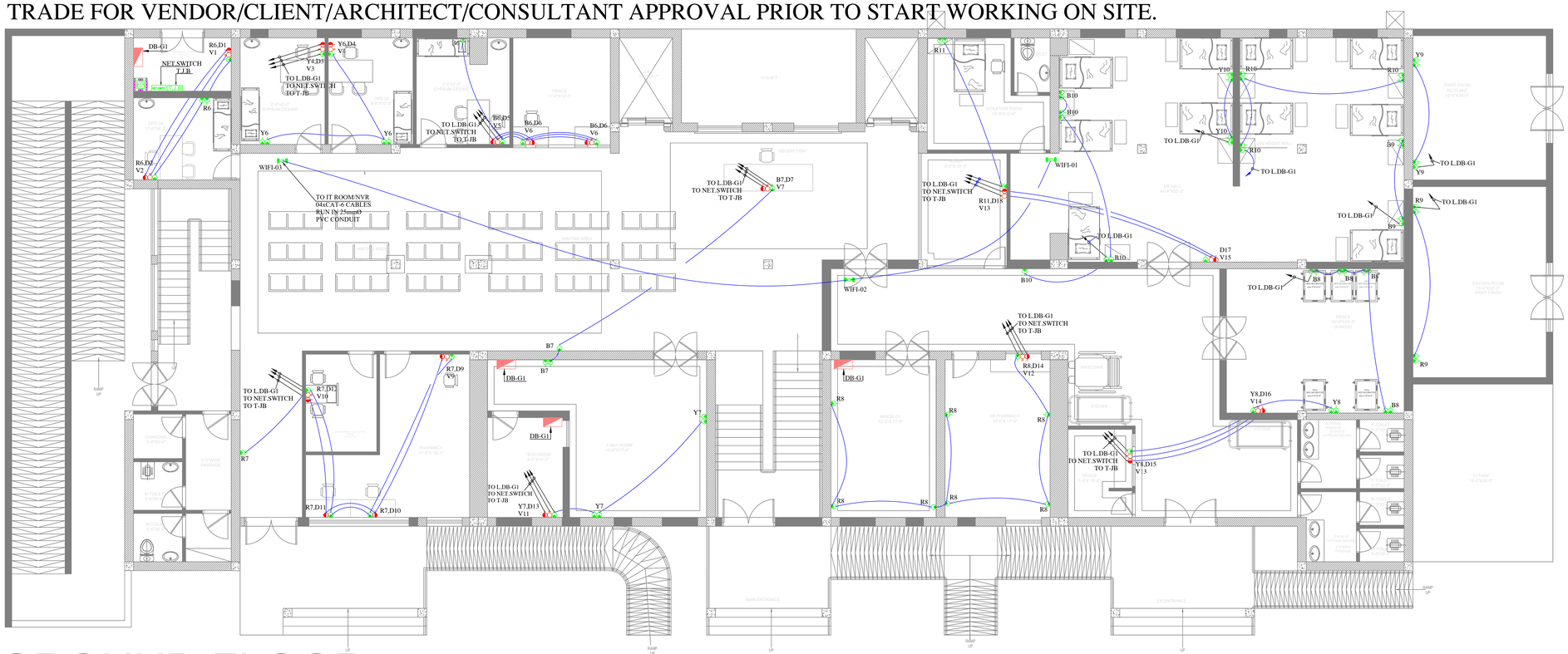
No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE: LIGHTING LAYOUT (GROUND FLOOR)

DRAWING NO: MEP-01-01

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project		
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	

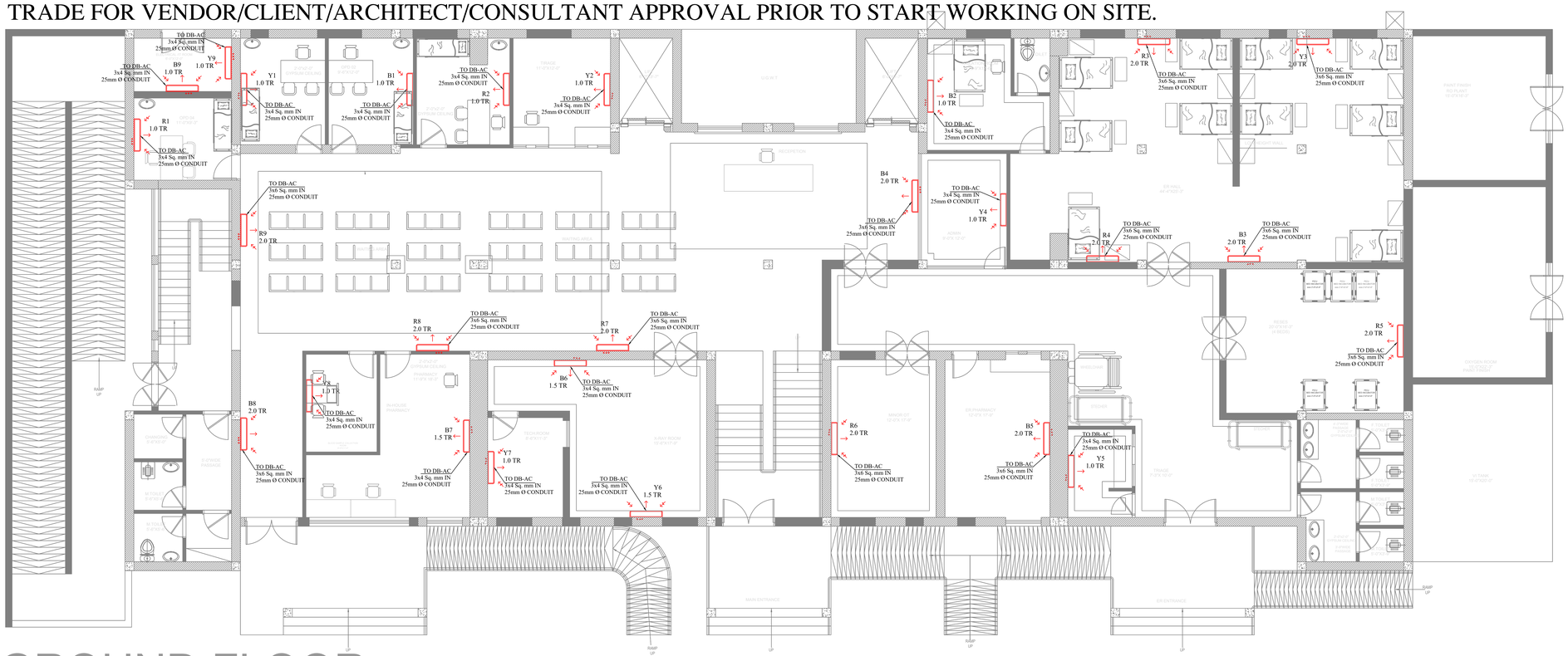
No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE: POWER,VOICE, & DATA LAYOUT (GROUND FLOOR)

DRAWING NO: MEP-01-02

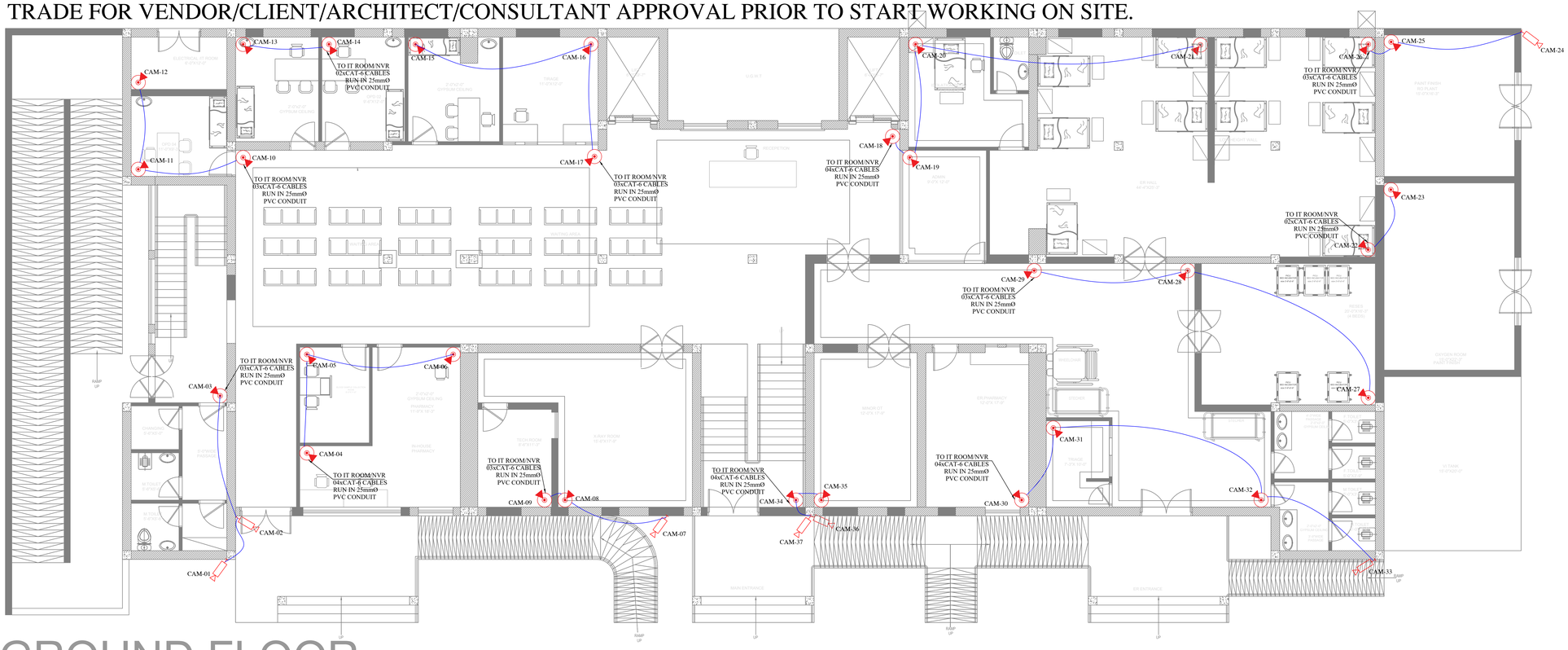
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project							
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No.	Date	Revision	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: SPLIT AC POWER LAYOUT (GROUND FLOOR)
		00	03/10/2025	*ISSUED FOR TENDER*	CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025	
					PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	DRAWING NO: MEP-01-03

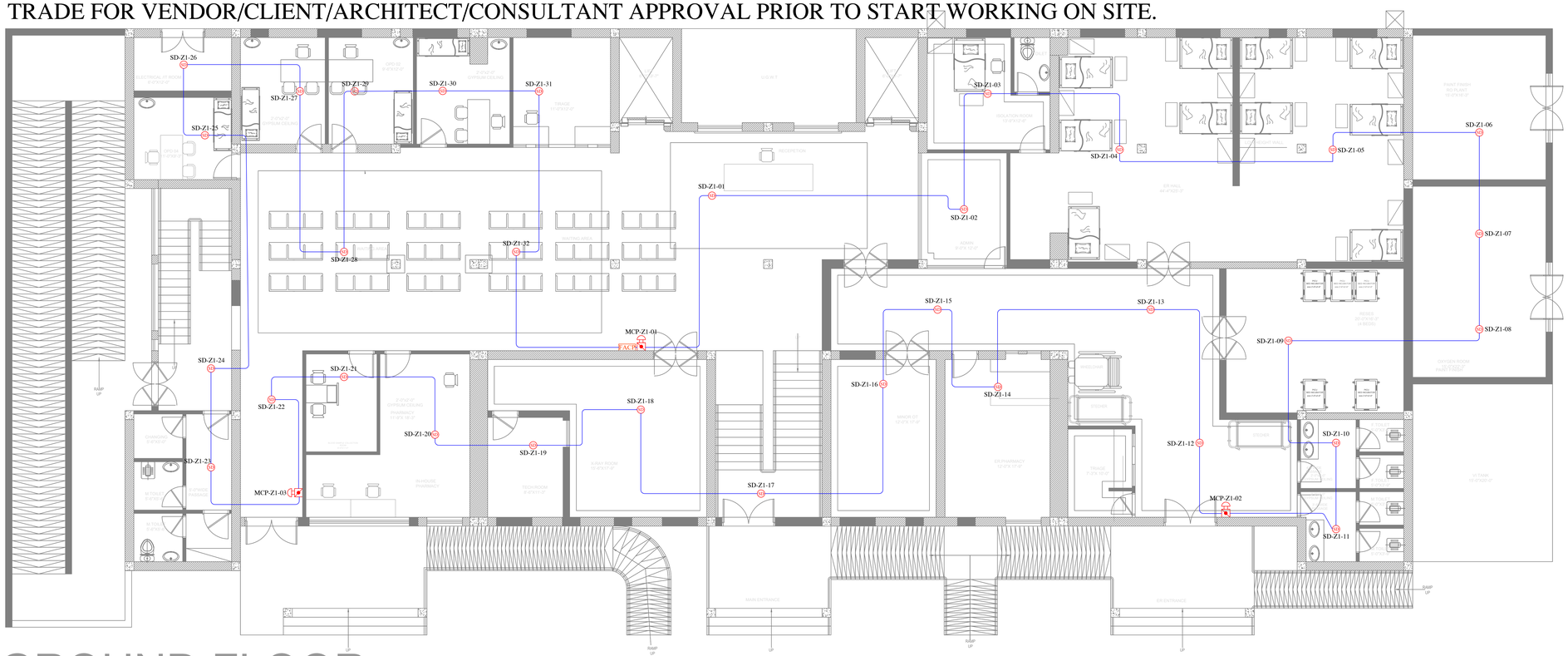
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: IP BASED CCTV SYSTEM LAYOUT (GROUND FLOOR)
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025	
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	DRAWING NO: MEP-01-04

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

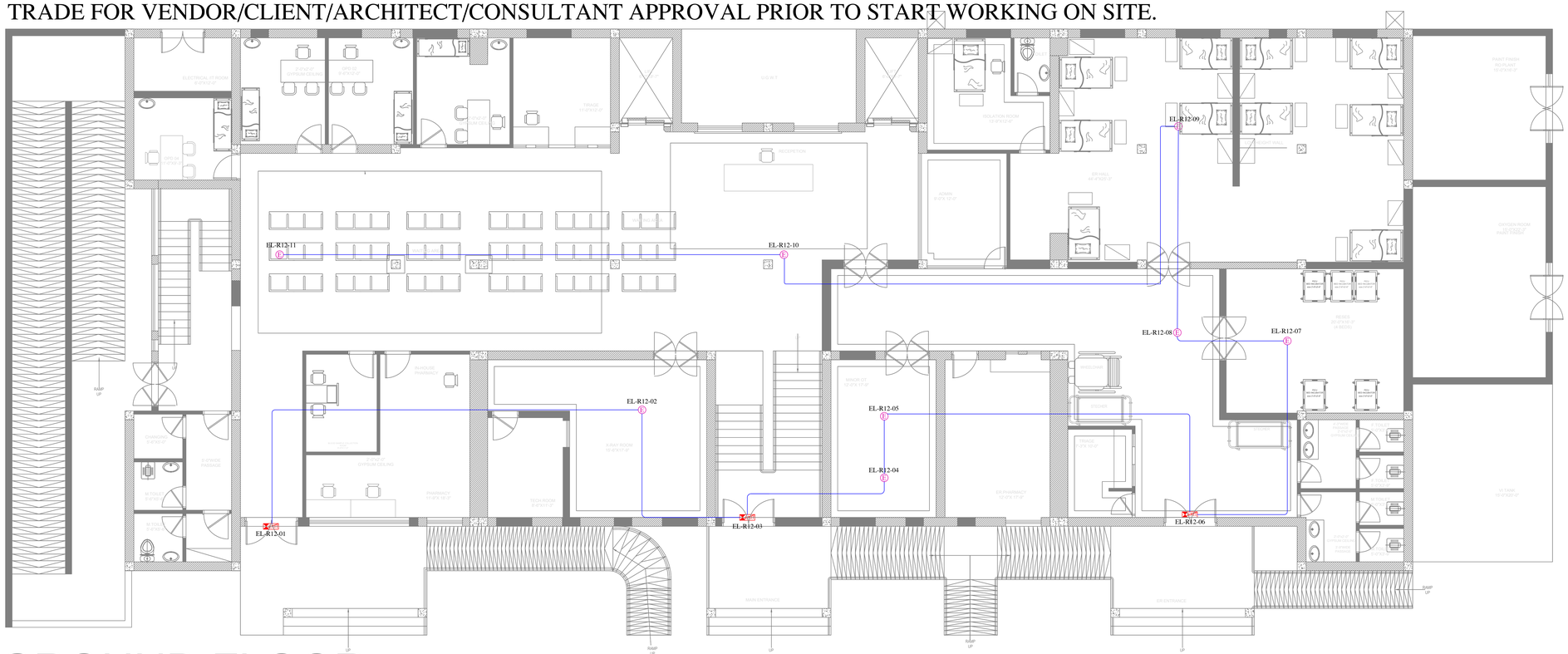
TITLE

ADDRESSABLE FIRE ALARM SYSTEM LAYOUT (GROUND FLOOR)

DRAWING NO

MEP-01-05

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project		
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	

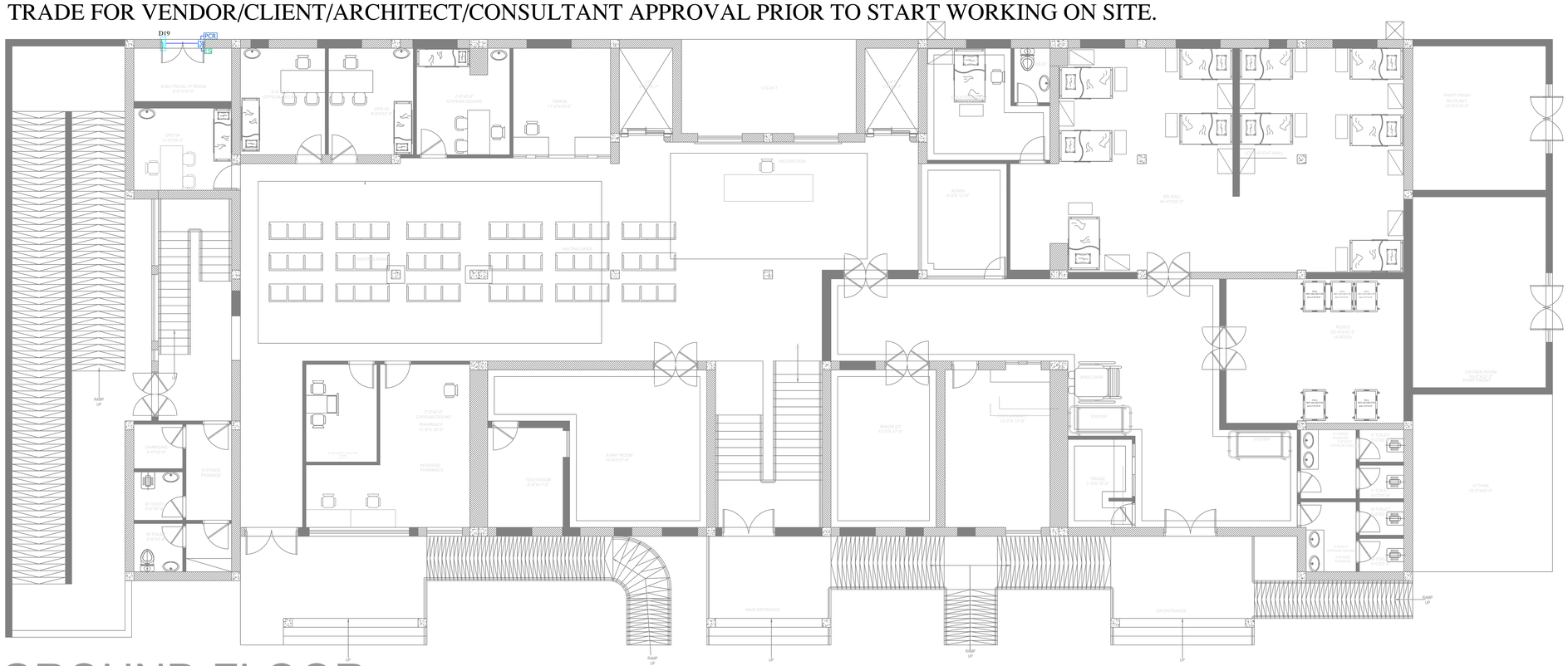
No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE
EMERGENCY & EXIT SIGN LIGHTING LAYOUT (GROUND FLOOR)

DRAWING NO
MEP-01-06

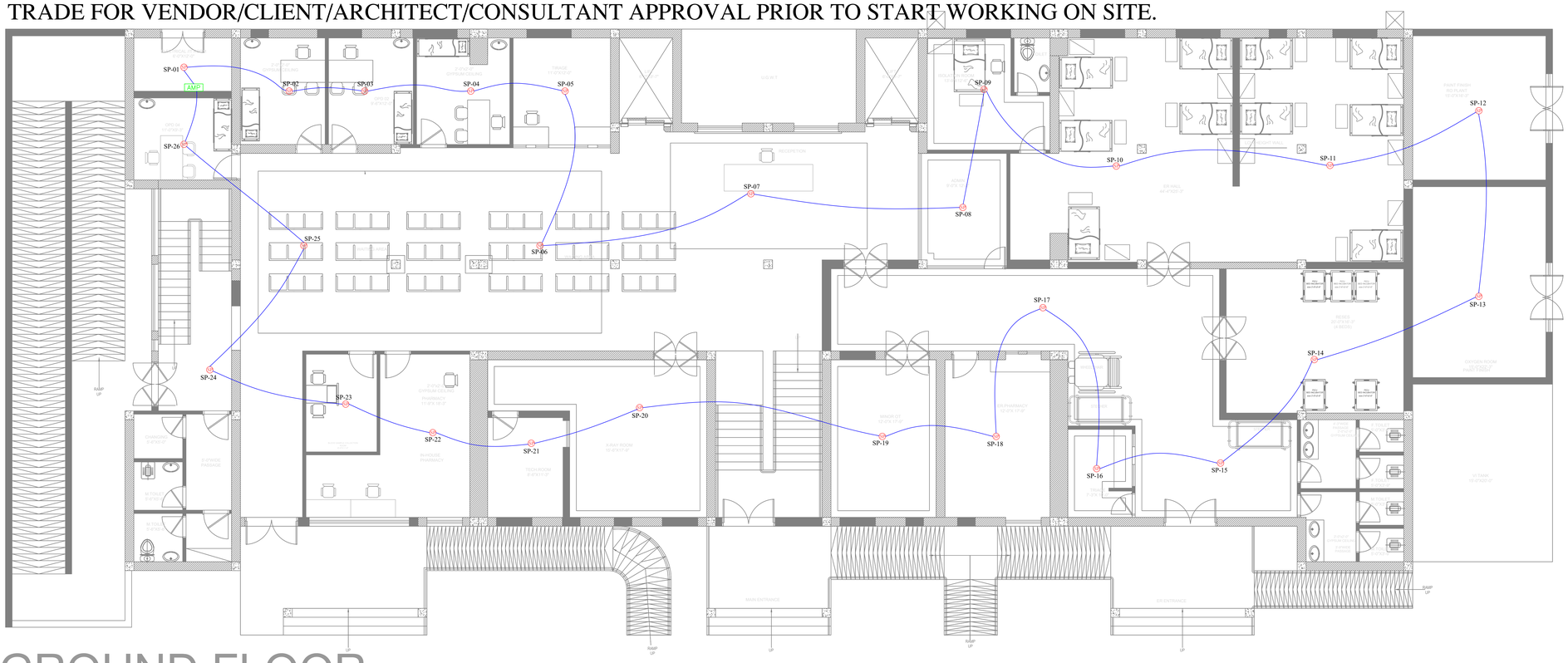
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project							
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No.	Date	Revision	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: ACCESS CONTROL LAYOUT (GROUND FLOOR)
		00	03/10/2025	*ISSUED FOR TENDER*	CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025	DRAWING NO: MEP-01-07
					PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

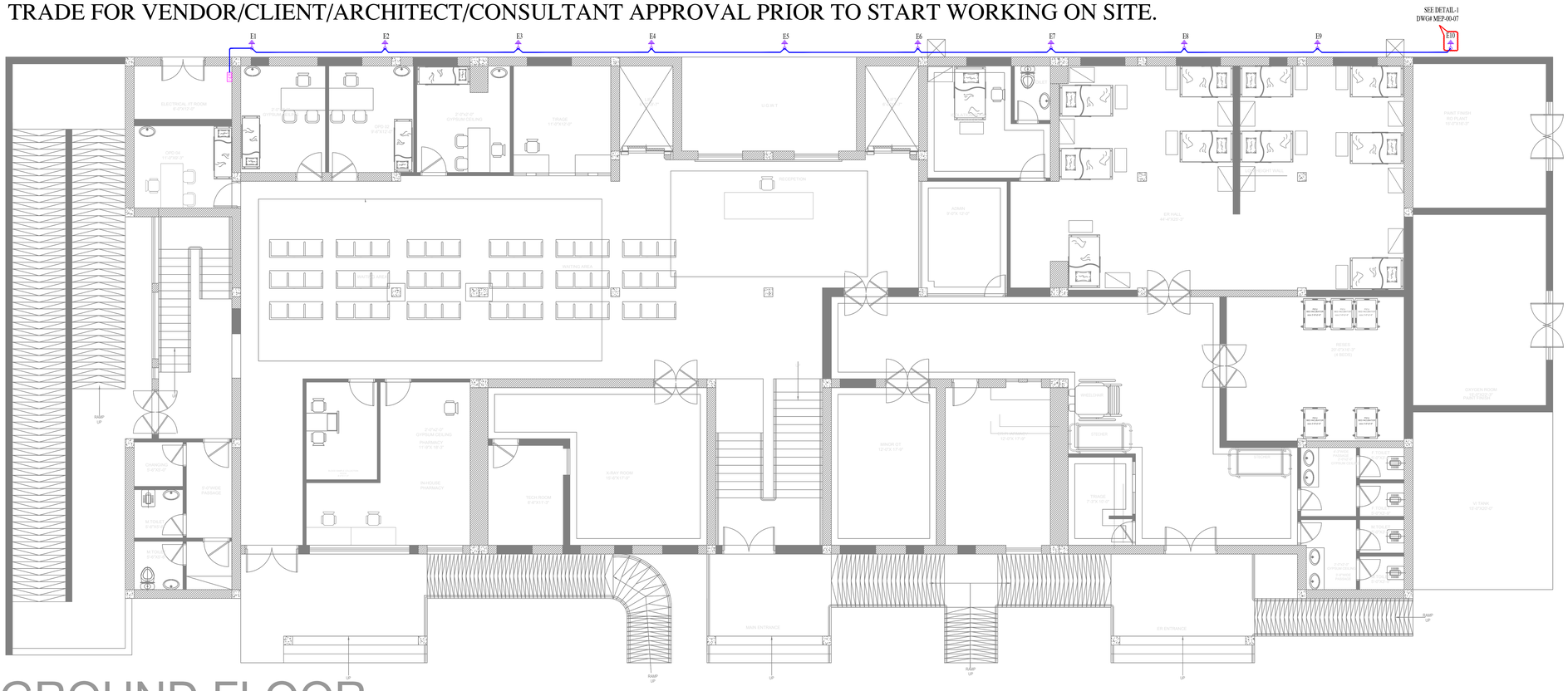
TITLE

MUSIC & SOUND SYSTEM LAYOUT (GROUND FLOOR)

DRAWING NO

MEP-01-08

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



GROUND FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES
SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN
DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE

EARTHING LAYOUT (GROUND FLOOR)

DRAWING NO

MEP-01-09

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

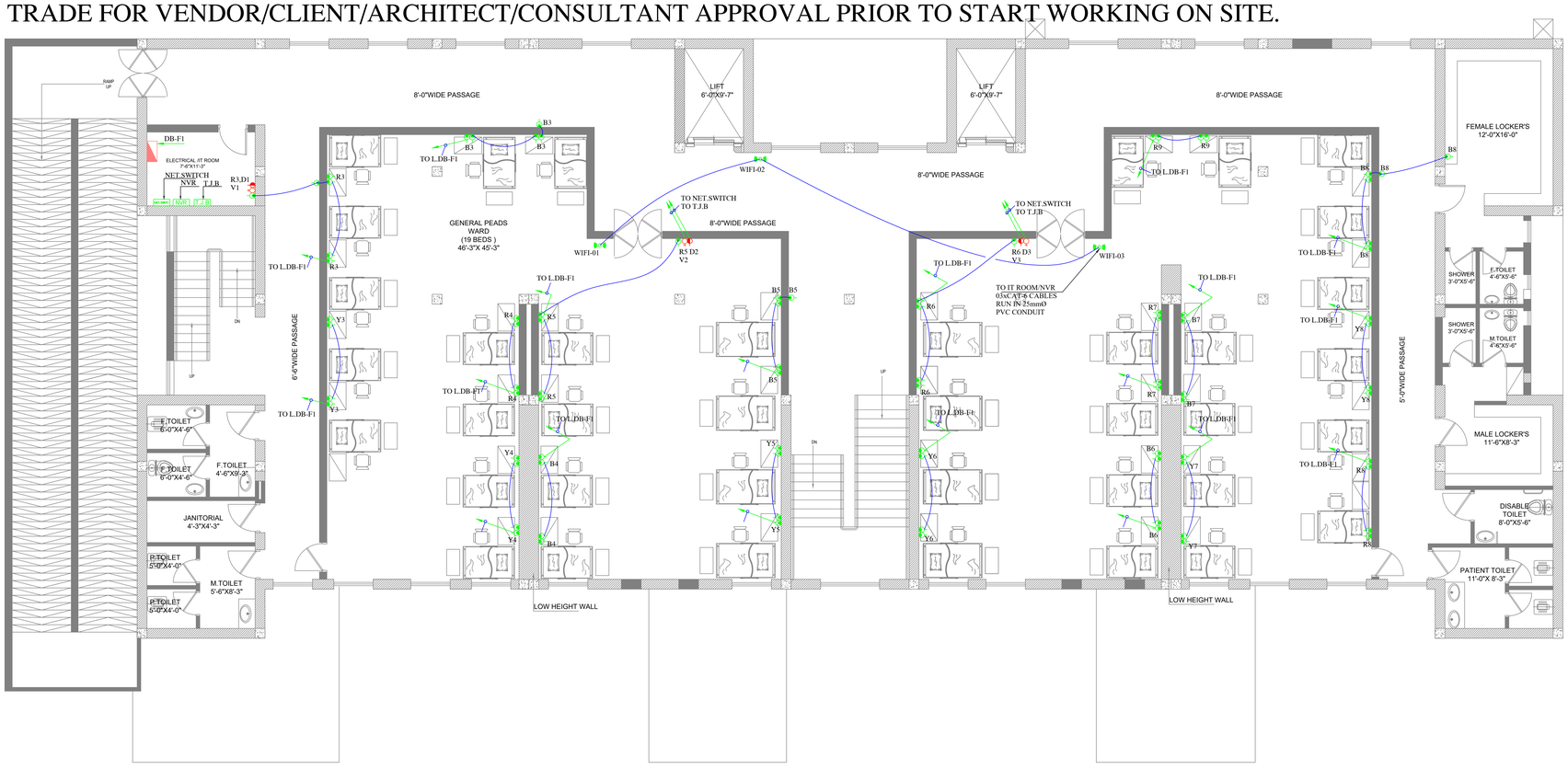
FIRST FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY			TITLE: LIGHTING LAYOUT (FIRST FLOOR)	DRAWING NO: MEP-02-01

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



FIRST FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: POWER,VOICE, & DATA LAYOUT (FIRST FLOOR)	DRAWING NO: MEP-02-02
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

FIRST FLOOR

Project	**(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

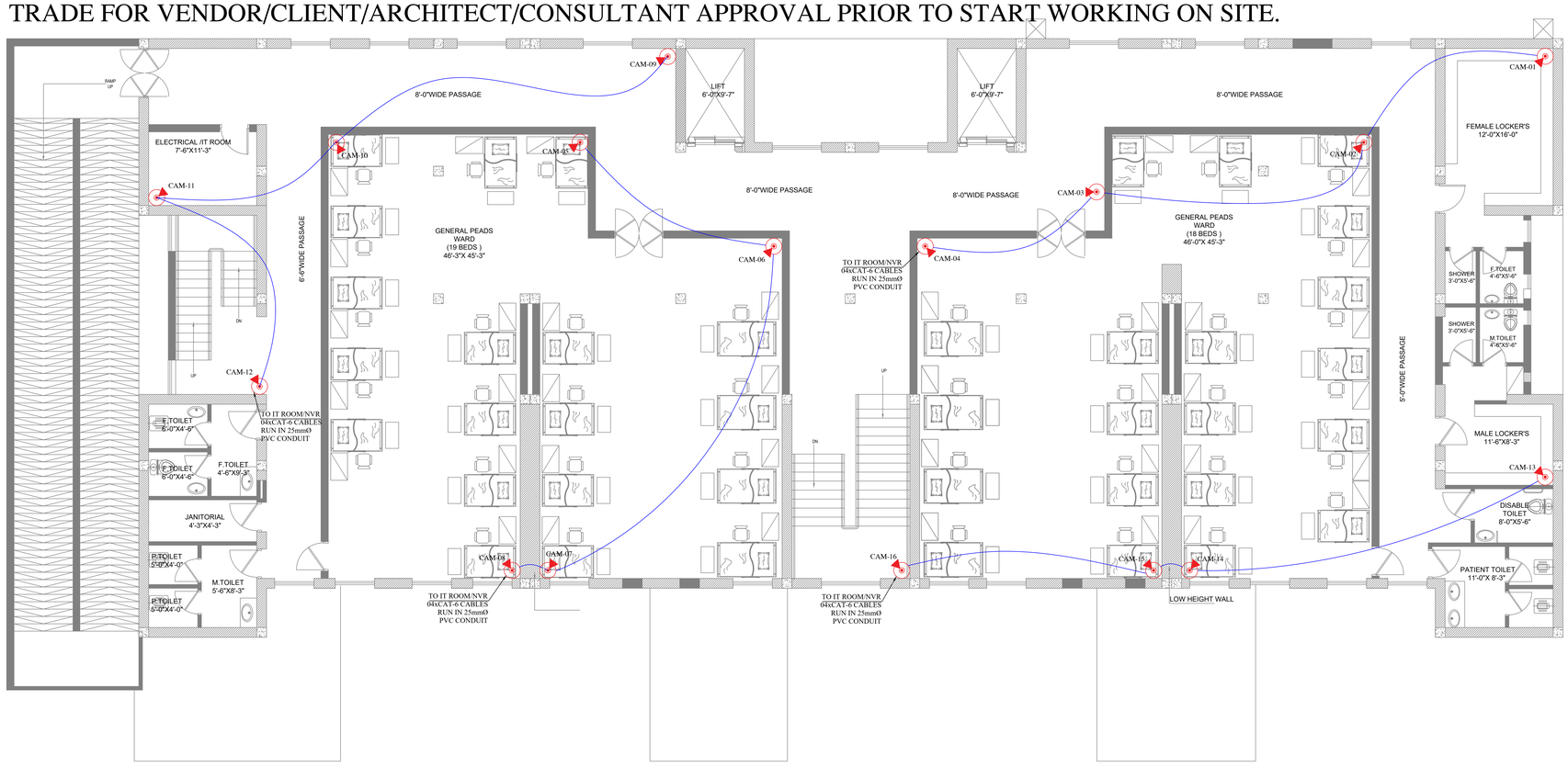
No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE: SPLIT AC POWER LAYOUT (FIRST FLOOR)

DRAWING NO: MEP-02-03

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



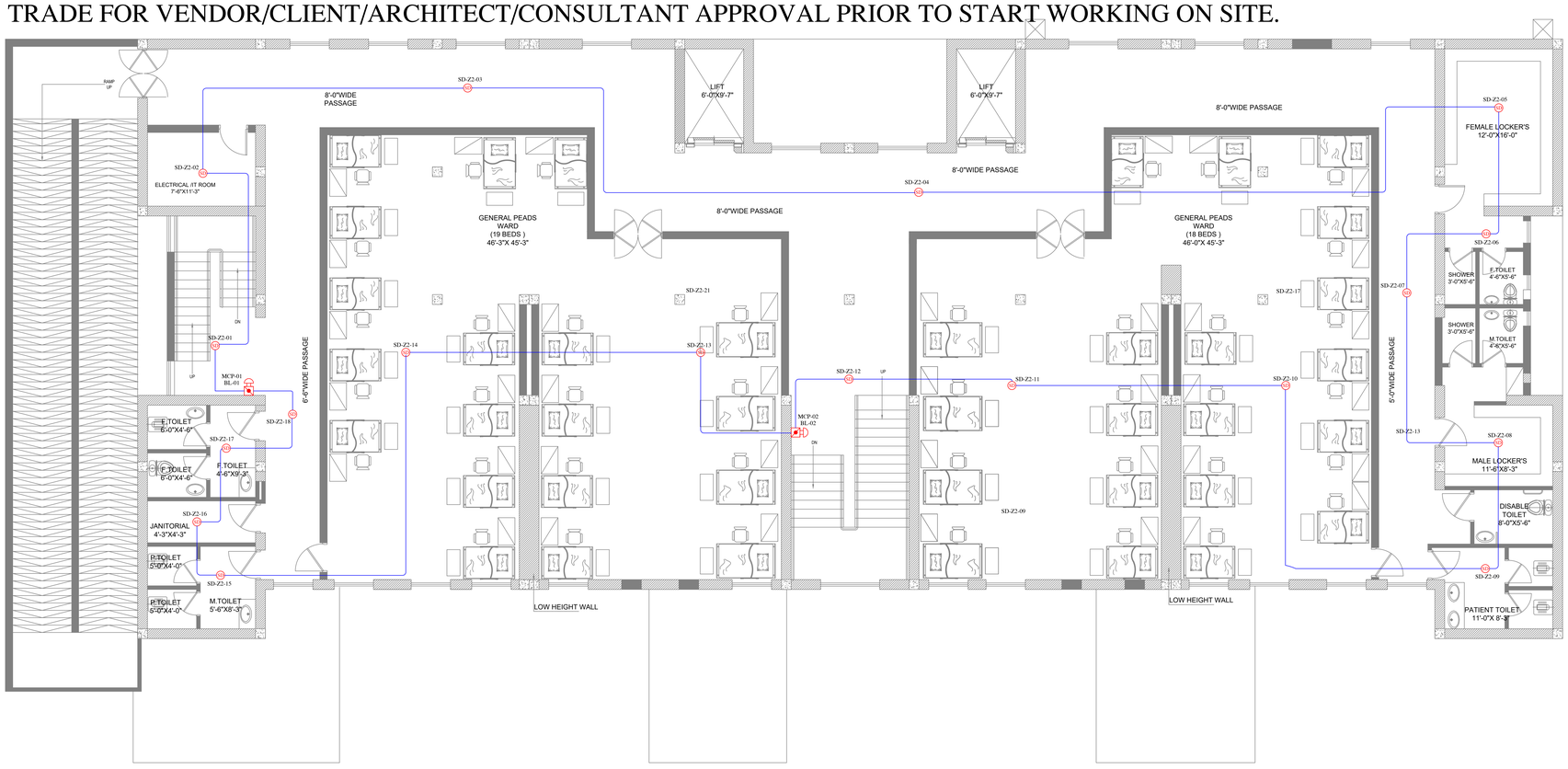
FIRST FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY			TITLE: IP BASED CCTV SYSTEM LAYOUT (FIRST FLOOR)	DRAWING NO: MEP-02-04

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



FIRST FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE

ADDRESSABLE FIRE ALARM LAYOUT (FIRST FLOOR)

DRAWING NO

MEP-02-05

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

FIRST FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE

EMERGENCY & EXIT SIGN LIGHTING LAYOUT (FIRST FLOOR)

DRAWING NO

MEP-02-06

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

FIRST FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

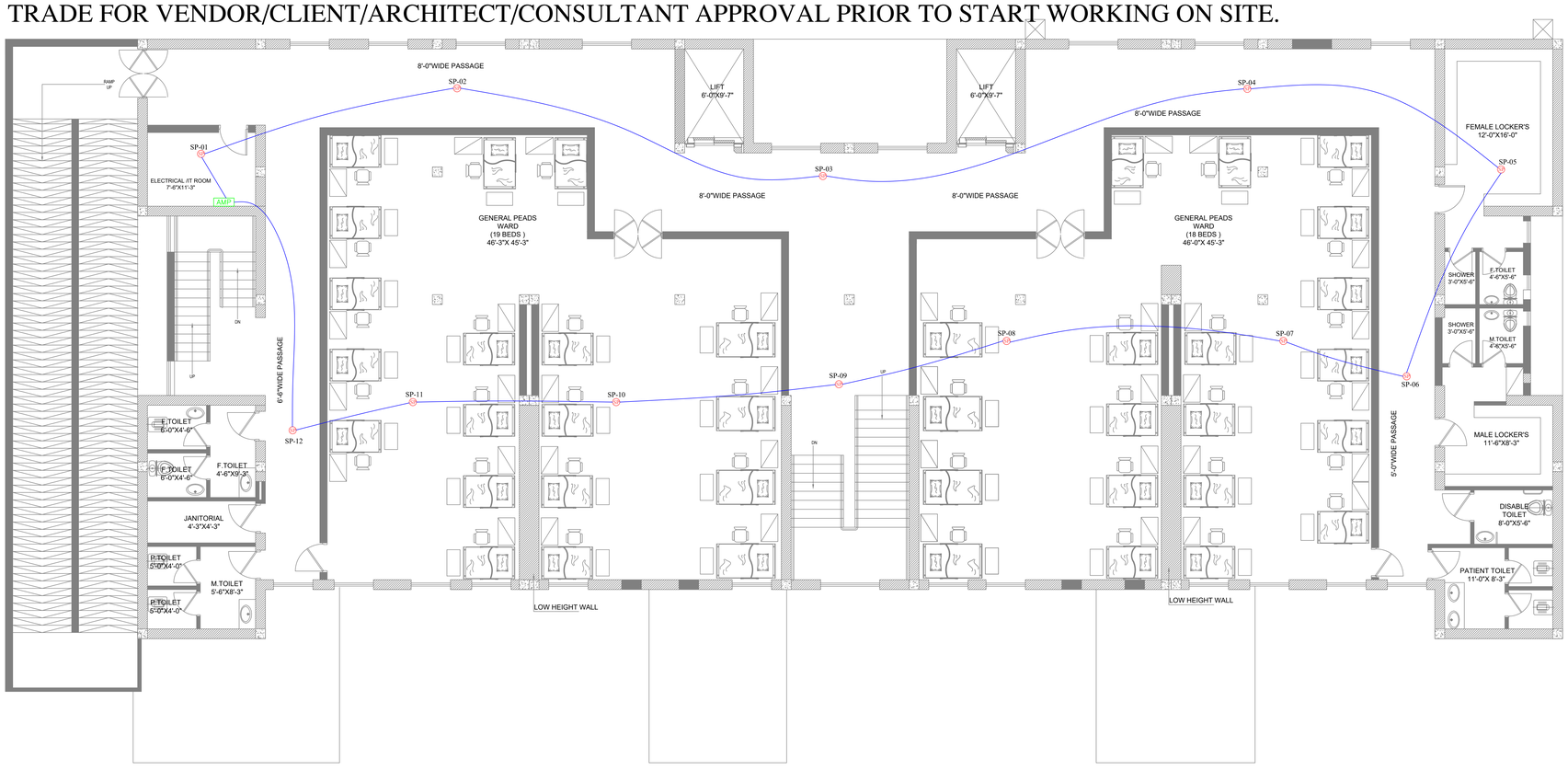
TITLE

ACCESS CONTROL LAYOUT (FIRST FLOOR)

DRAWING NO

MEP-02-07

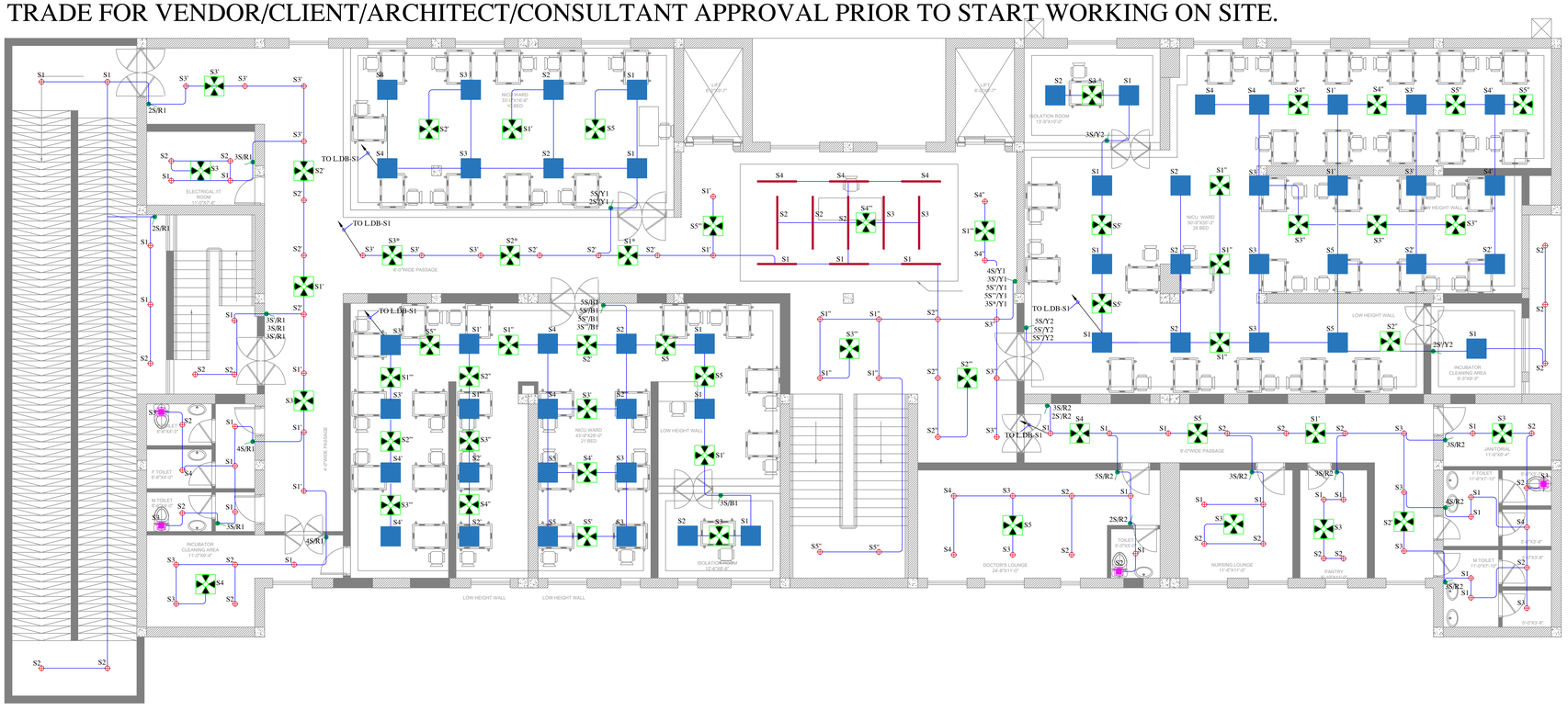
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



FIRST FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: MUSIC & SOUND SYSTEM LAYOUT (FIRST FLOOR)	DRAWING NO: MEP-02-08
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

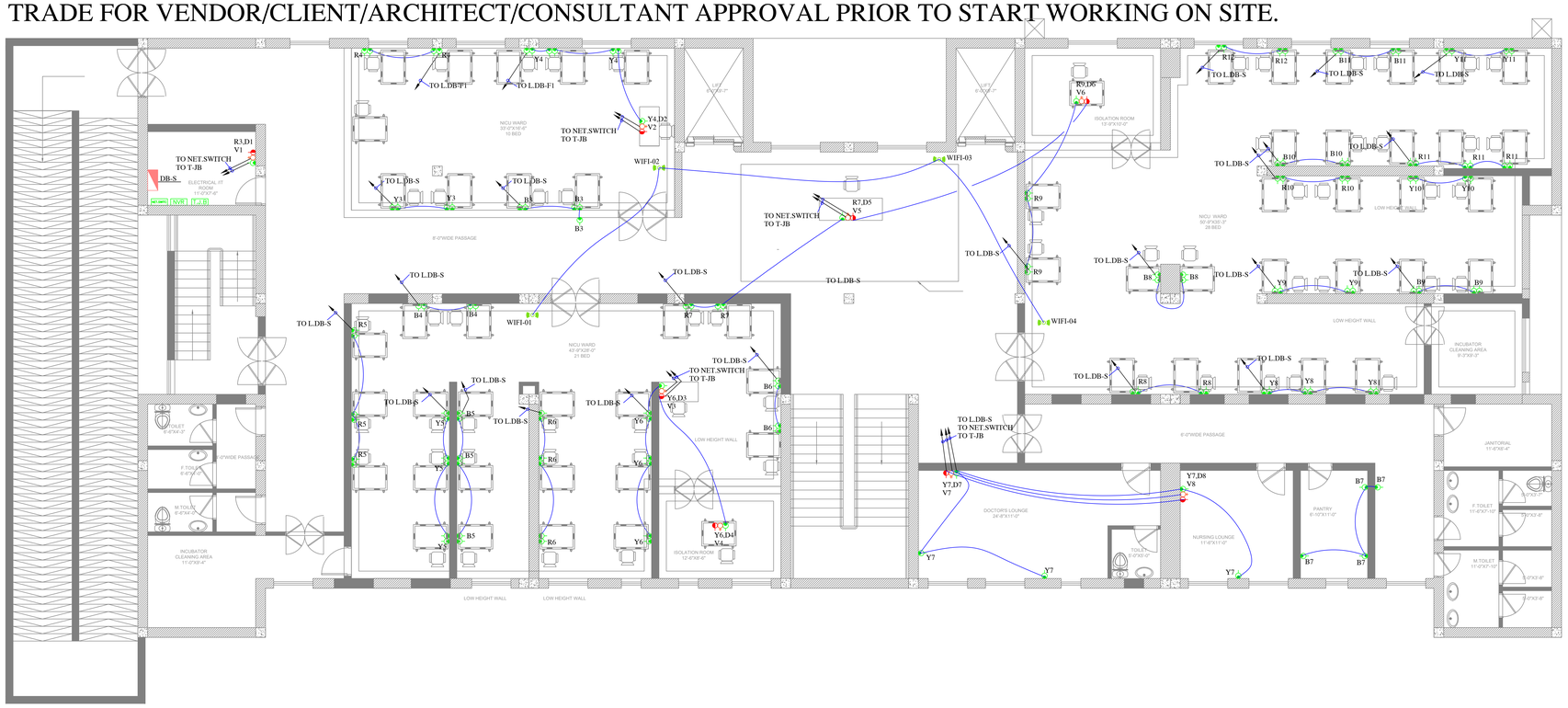
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



SECOND FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: LIGHTING LAYOUT (SECOND FLOOR)	DRAWING NO: MEP-03-01
		00 / 03/10/2025 / *ISSUED FOR TENDER*	CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

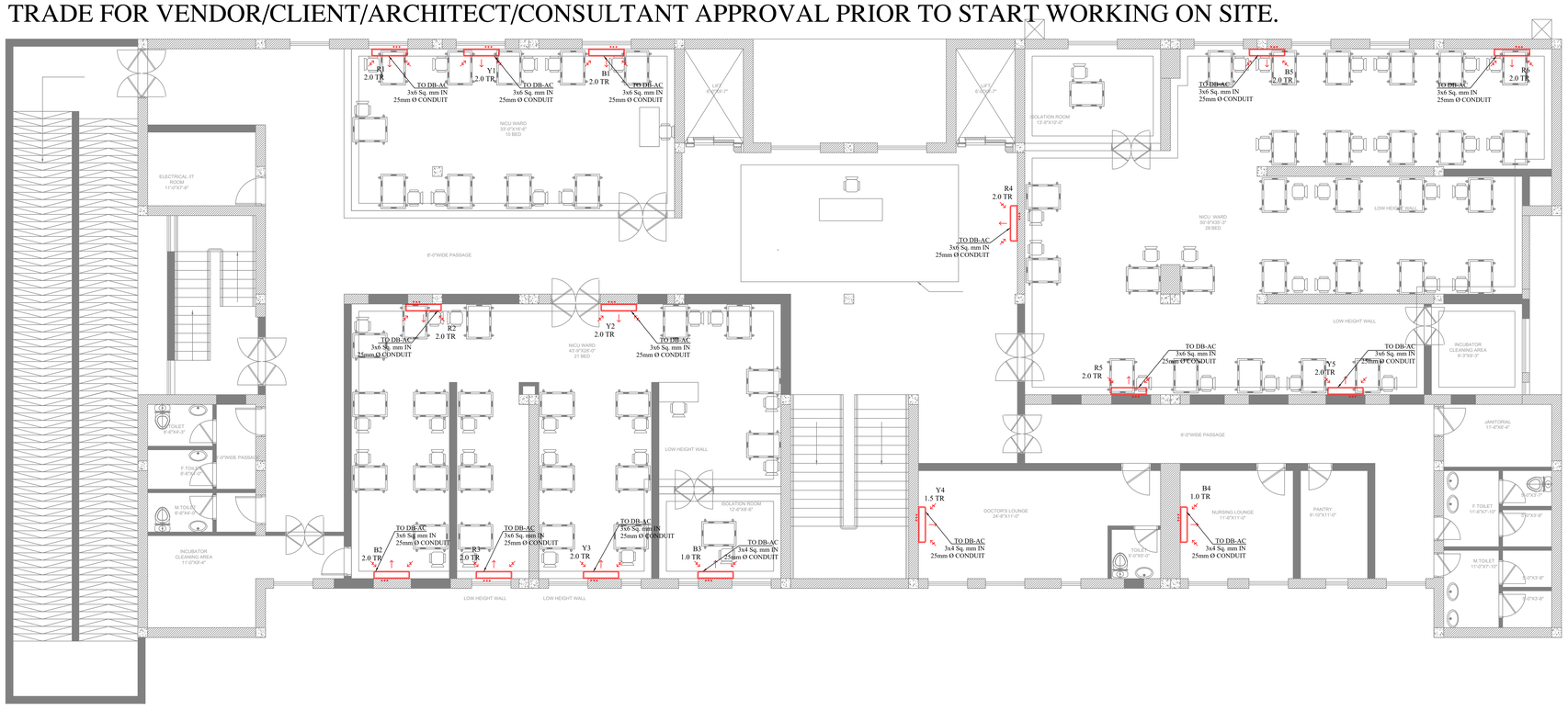


SECOND FLOOR

Project							
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY			DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: POWER,VOICE, & DATA LAYOUT (SECOND FLOOR)	DRAWING NO: MEP-03-02
				CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
				PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



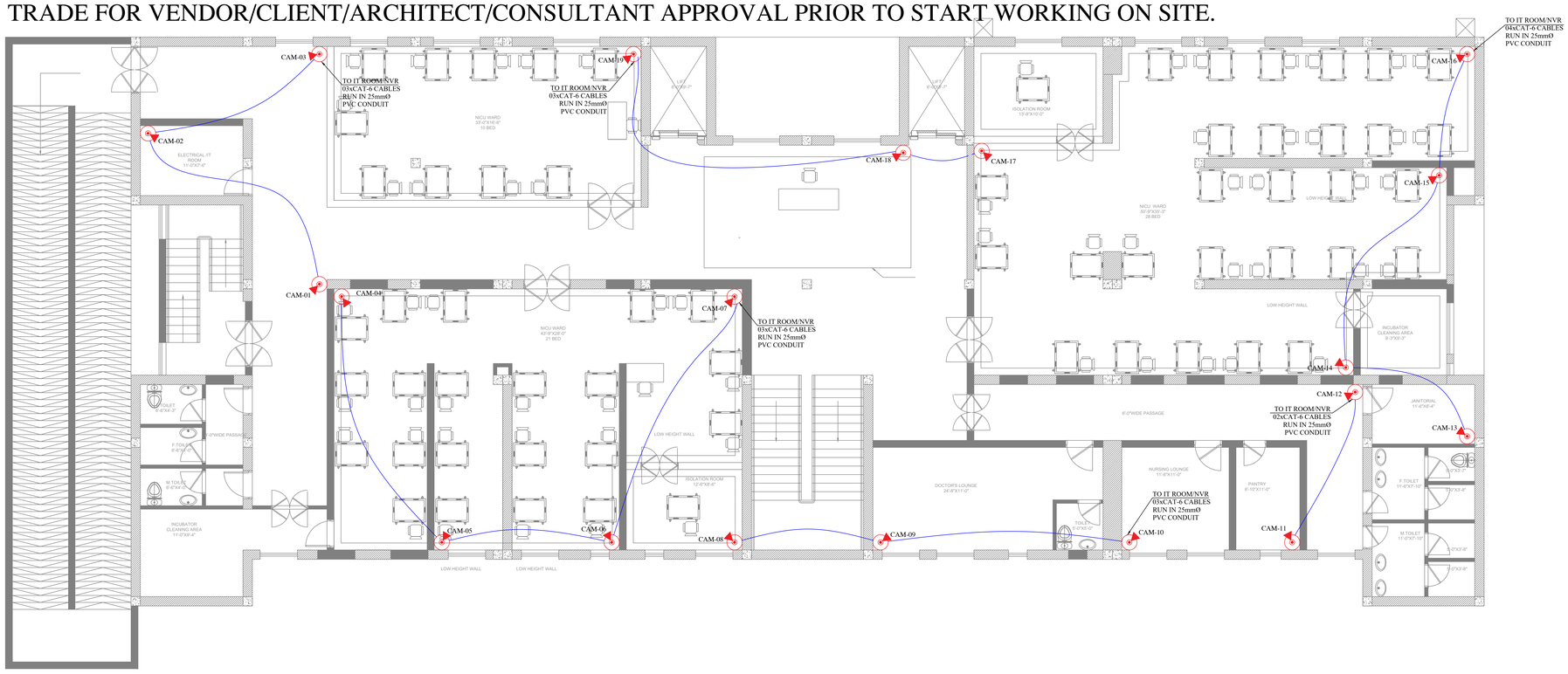
SECOND FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No.	Date	Revision	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
		00	03/10/2025	*ISSUED FOR TENDER*	CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
					PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE: SPLIT AC POWER LAYOUT (SECOND FLOOR)

DRAWING NO: MEP-03-03

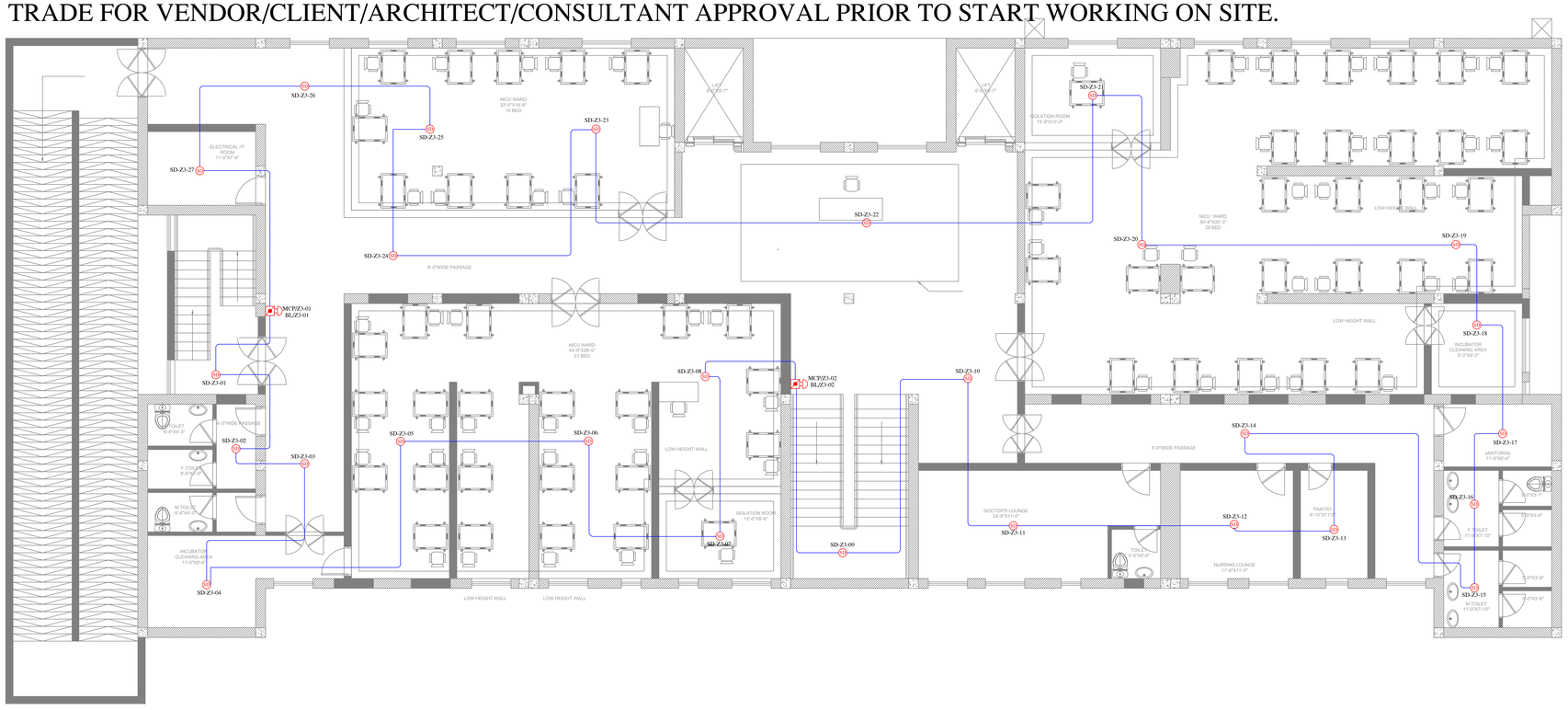
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



SECOND FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY					
		No.	Date	Revision	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
		00	03/10/2025	*ISSUED FOR TENDER*	CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
					PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12
					TITLE: IP BASED CCTV SYSTEM LAYOUT (SECOND FLOOR)	DRAWING NO: MEP-03-04

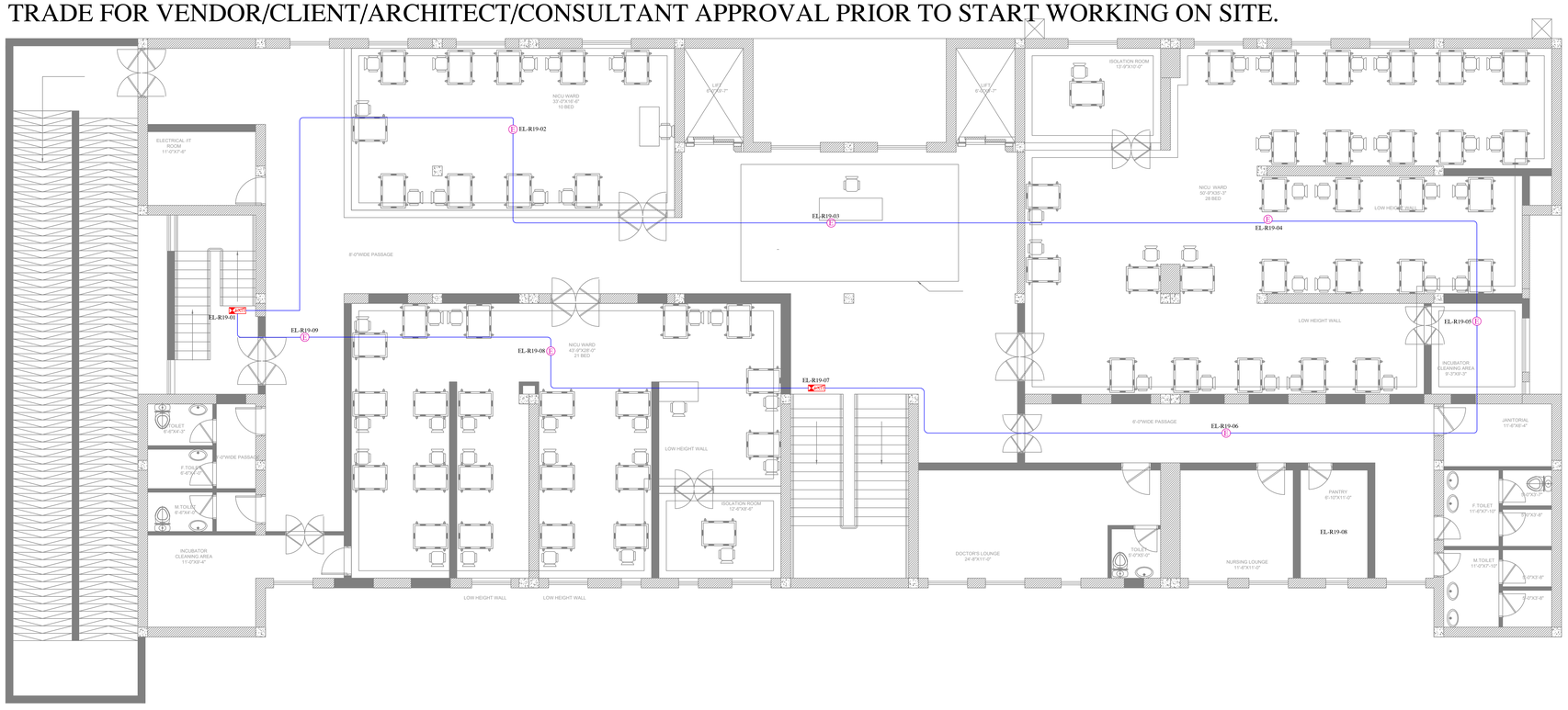
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



SECOND FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: ADDRESSABLE FIRE ALARM SYSTEM LAYOUT (SECOND FLOOR)
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025	
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	DRAWING NO: MEP-03-05

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

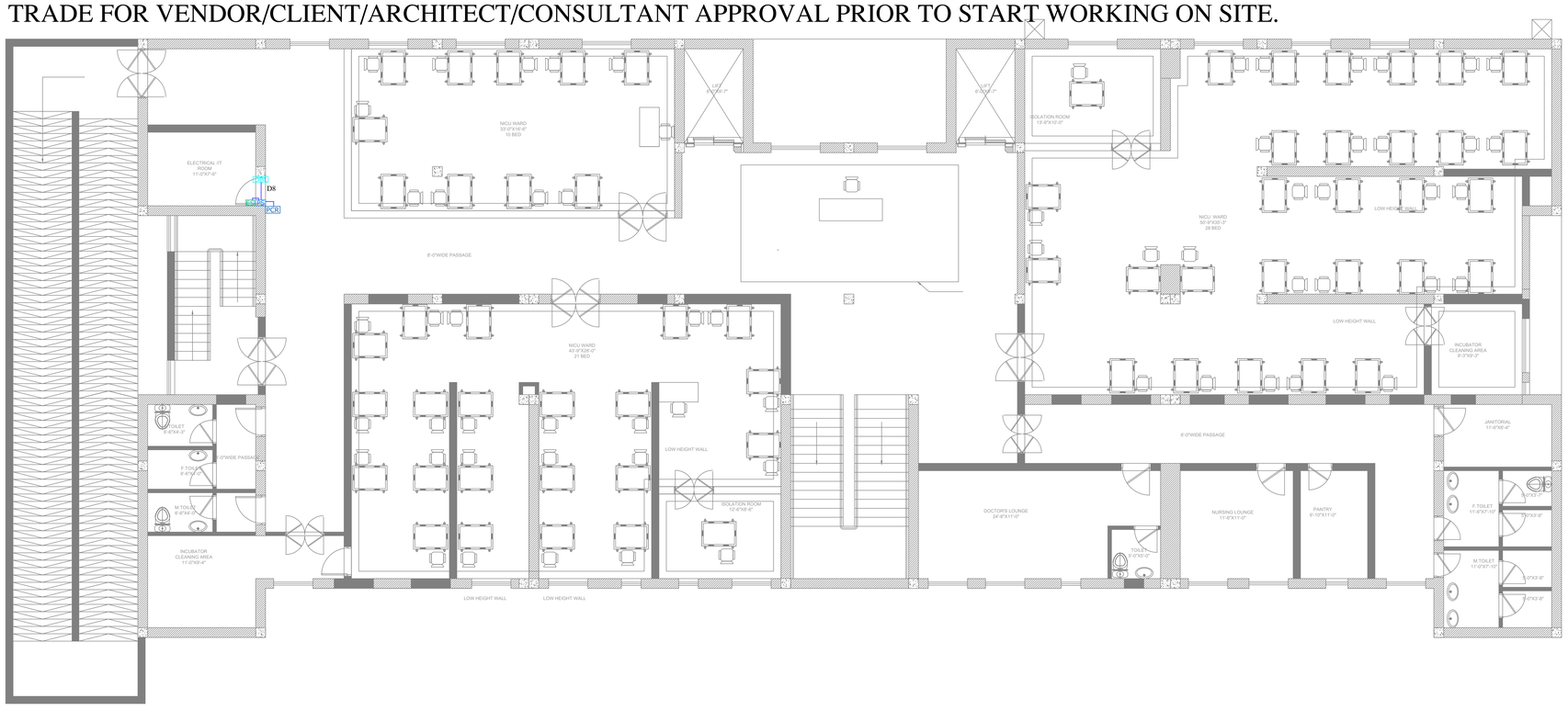


SECOND FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY				TITLE: EMERGENCY & EXIT SIGN LIGHTING LAYOUT (SECOND FLOOR)	DRAWING NO: MEP-03-06

No.	Date	Revision	DRAWN BY:	SCALE:
00	03/10/2025	*ISSUED FOR TENDER*	SALMAN SAEES	1/16"=1'-0"
			CHECKED BY:	DATE:
			NAEEM KHAN	03-OCT-2025
			PRINCIPAL ENGR:	JOB NO:
			ZUBAIR AHMED	ZAE-0825/12

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



SECOND FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

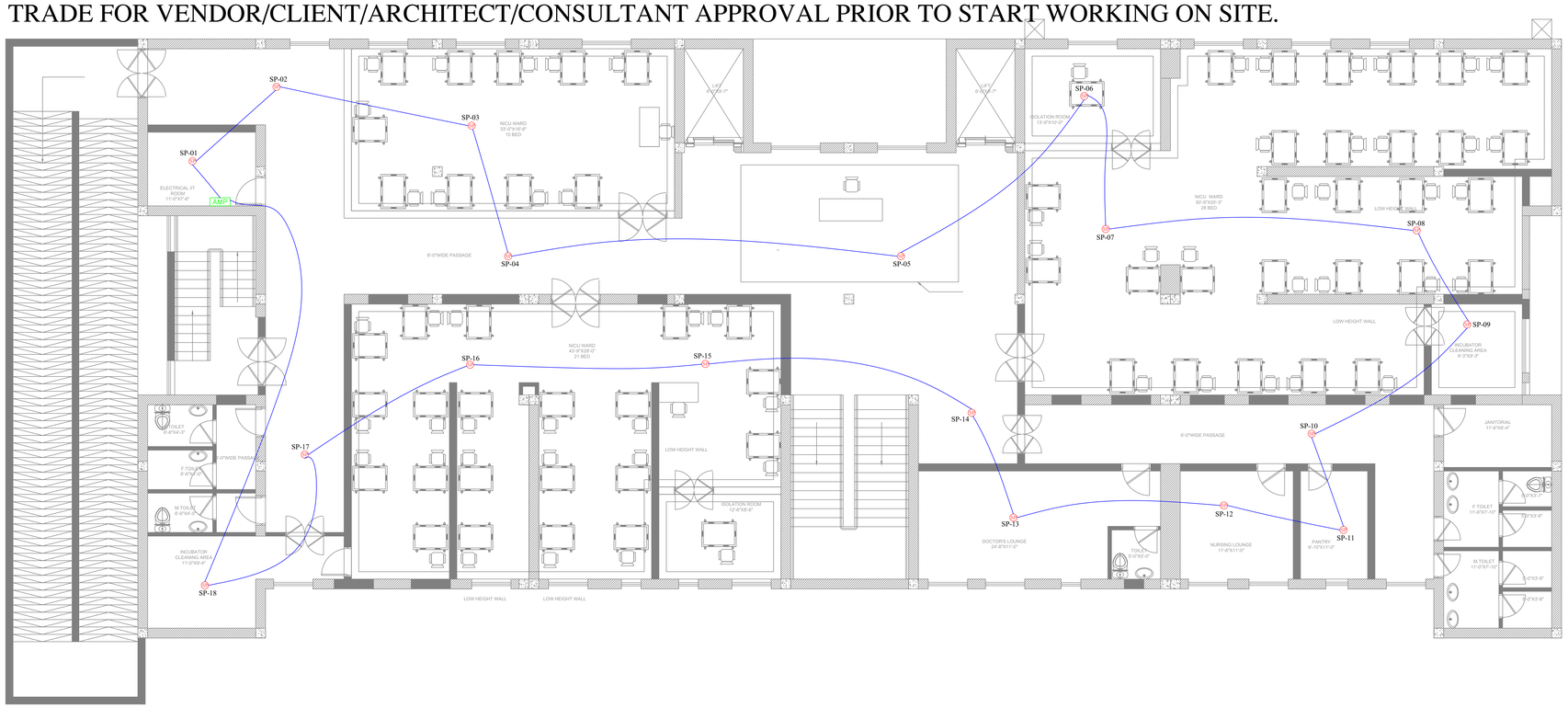
TITLE

ACCESS CONTROL LAYOUT (SECOND FLOOR)

DRAWING NO

MEP-03-07

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



SECOND FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE

MUSIC & SOUND SYSTEM LAYOUT (SECOND FLOOR)

DRAWING NO

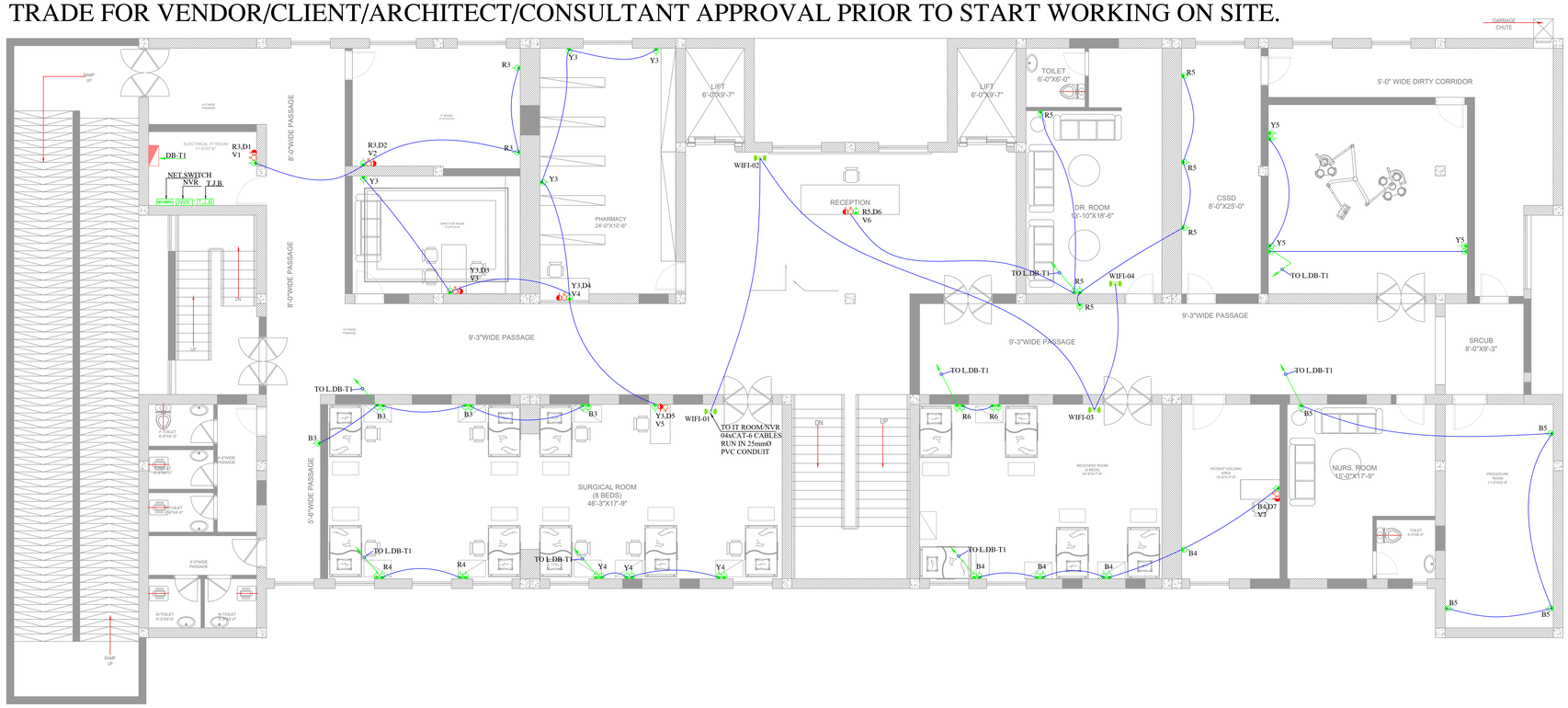
MEP-03-08

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

THIRD FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: LIGHTING LAYOUT (THIRD FLOOR)	DRAWING NO: MEP-04-01
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



THIRD FLOOR

Project	**(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	
	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	

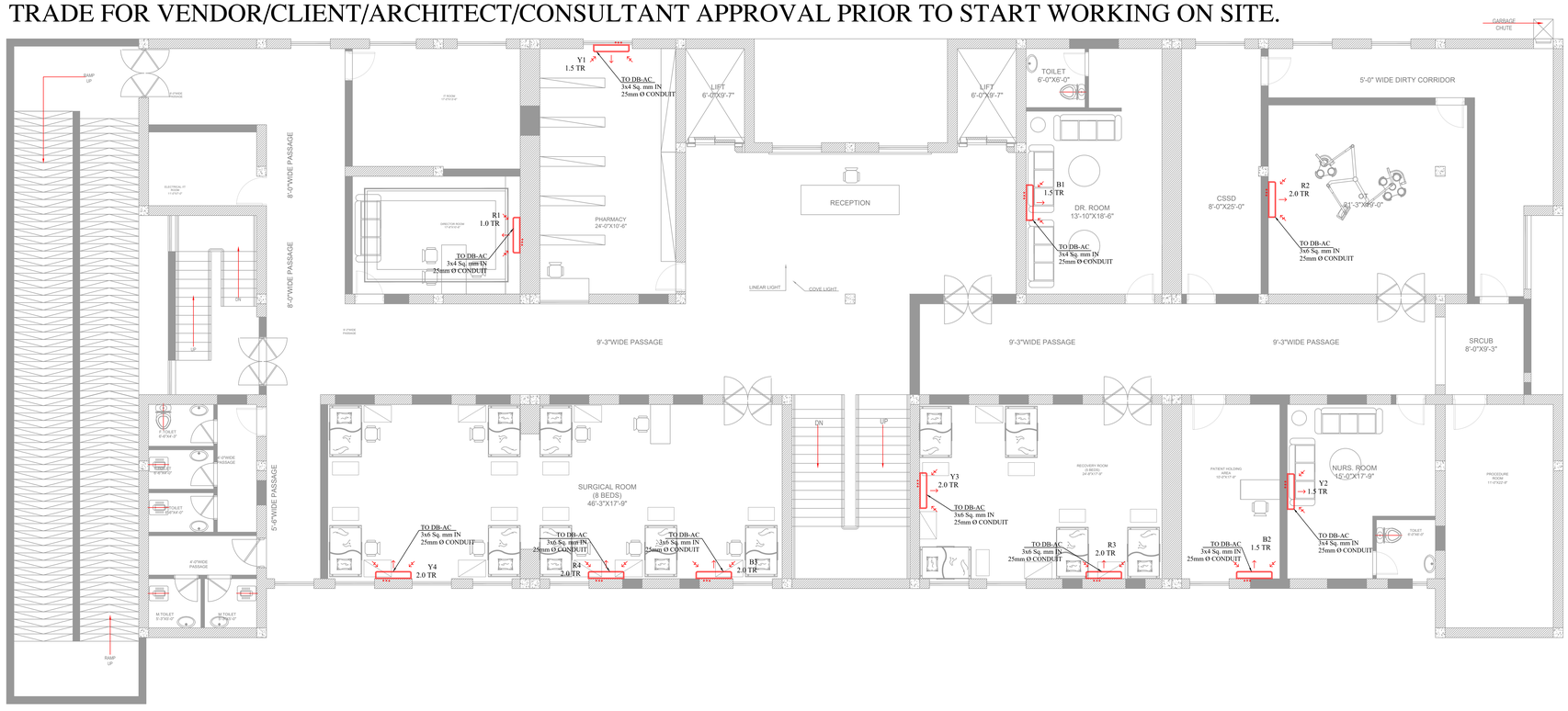
No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE: POWER,VOICE, & DATA LAYOUT (THIRD FLOOR)

DRAWING NO: MEP-04-02

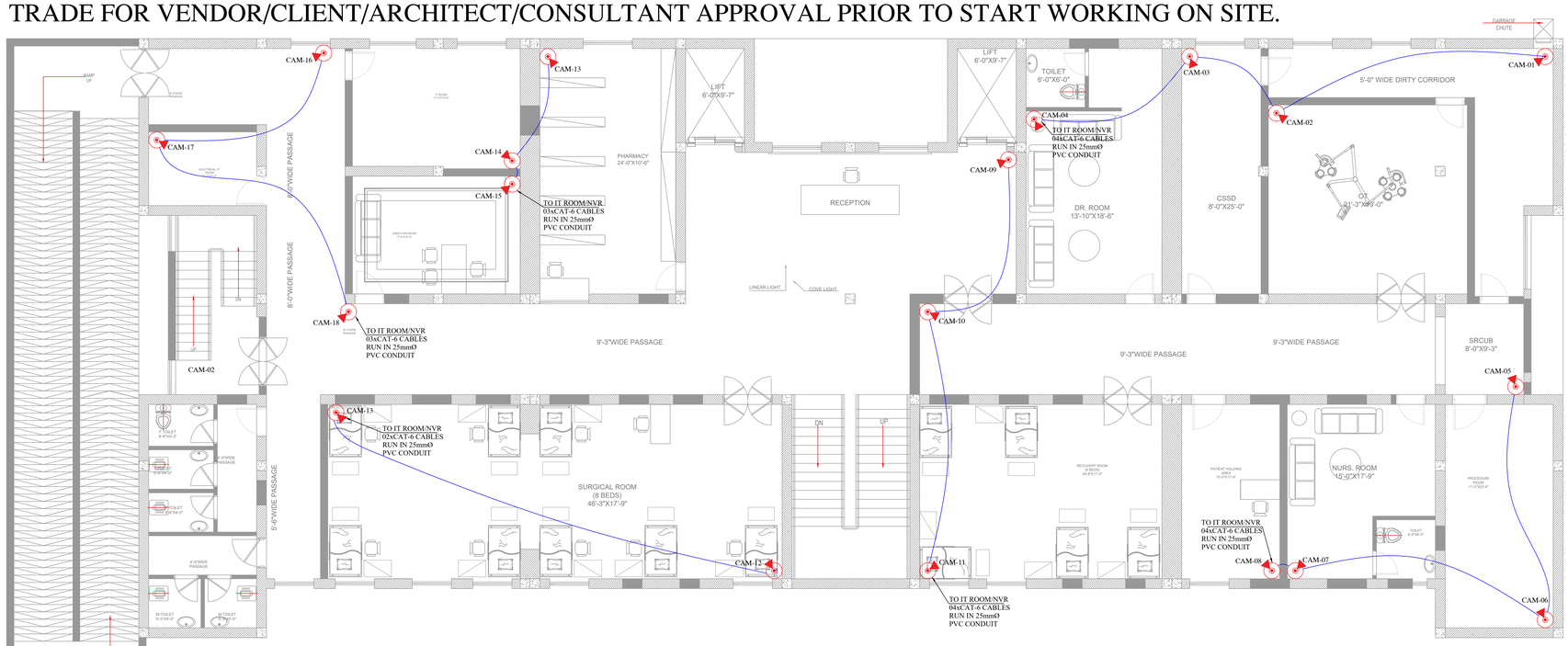
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



THIRD FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: SPLIT AC POWER LAYOUT (THIRD FLOOR)	DRAWING NO: MEP-04-03
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



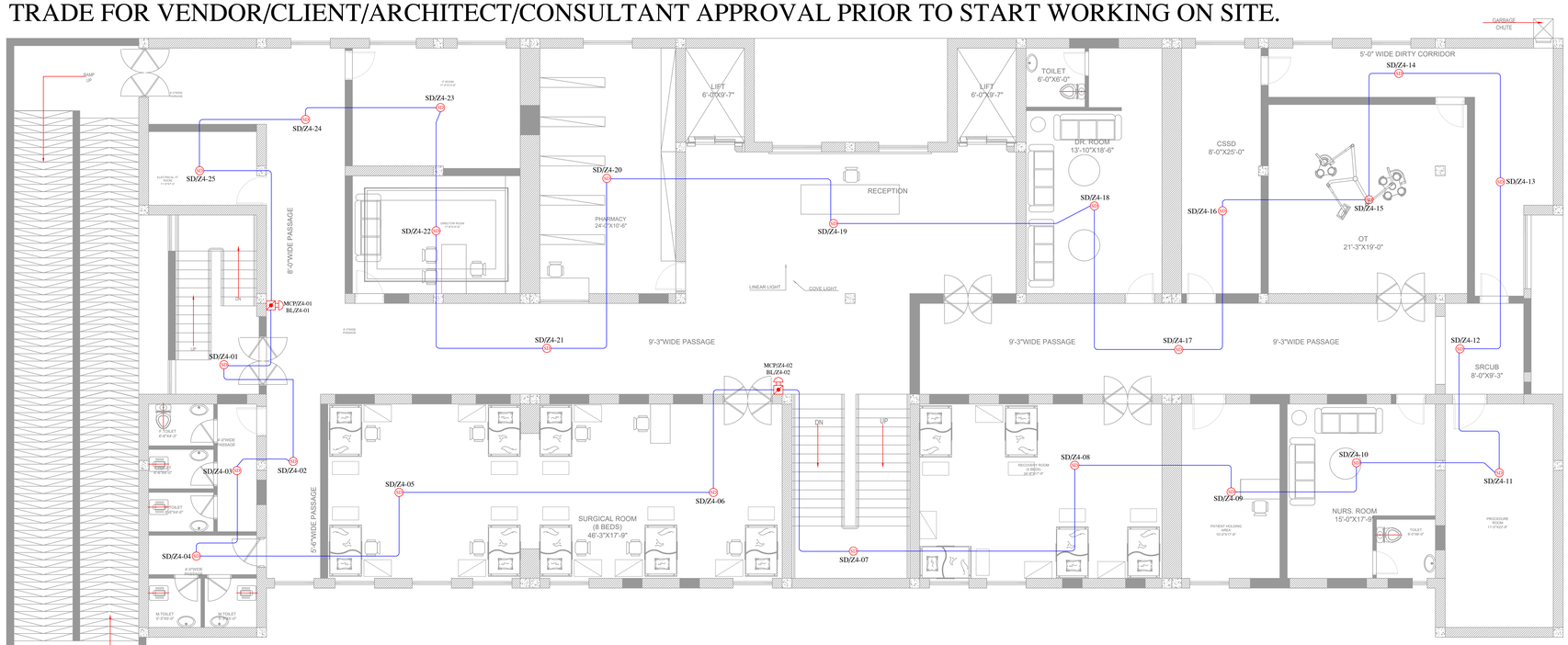
THIRD FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY		DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: IP BASED CCTV SYSTEM LAYOUT (THIRD FLOOR)
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025	
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWING NO: MEP-04-04

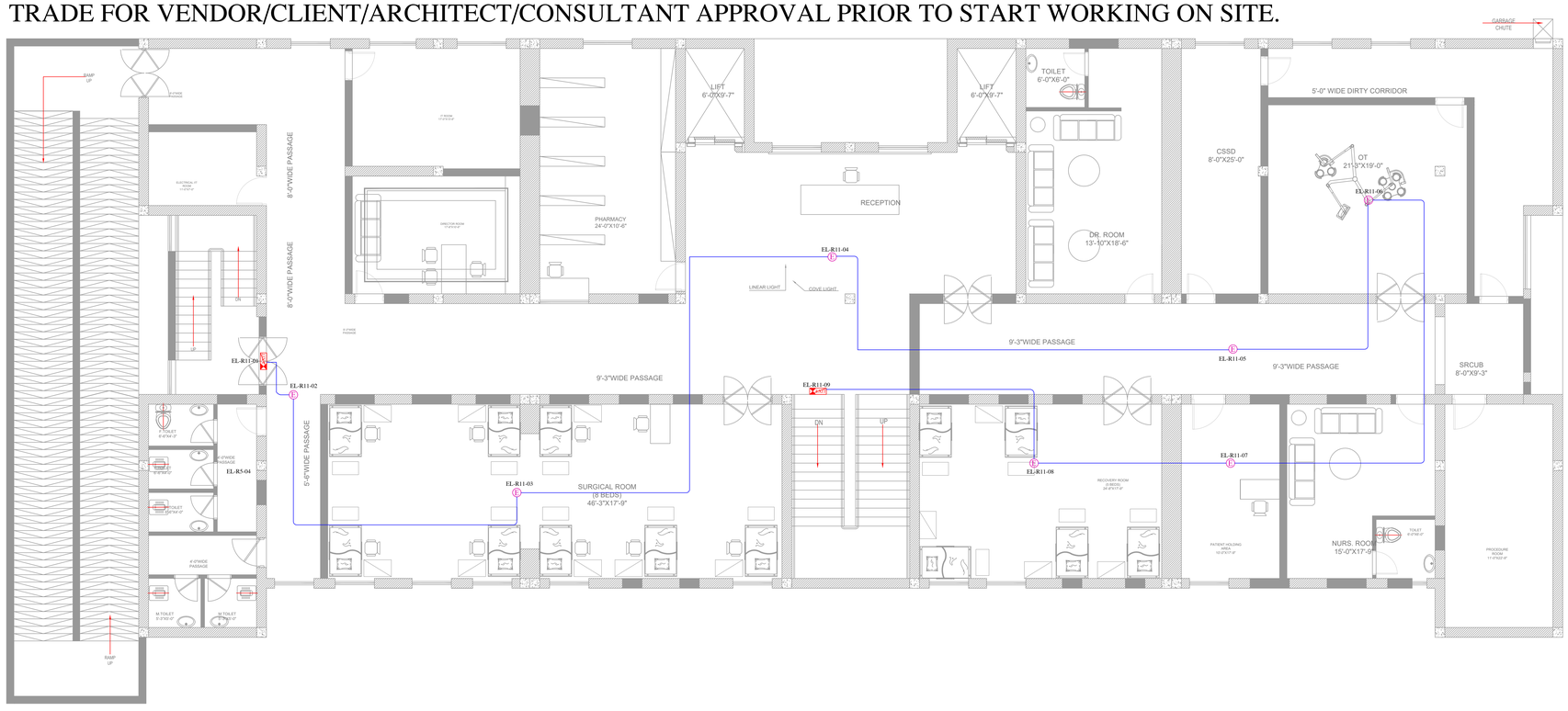
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



THIRD FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY					
		No.	Date	Revision	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
		00	03/10/2025	*ISSUED FOR TENDER*	CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
					PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12
					TITLE: ADDRESSABLE FIRE ALARM SYSTEM LAYOUT (THIRD FLOOR)	DRAWING NO: MEP-04-05

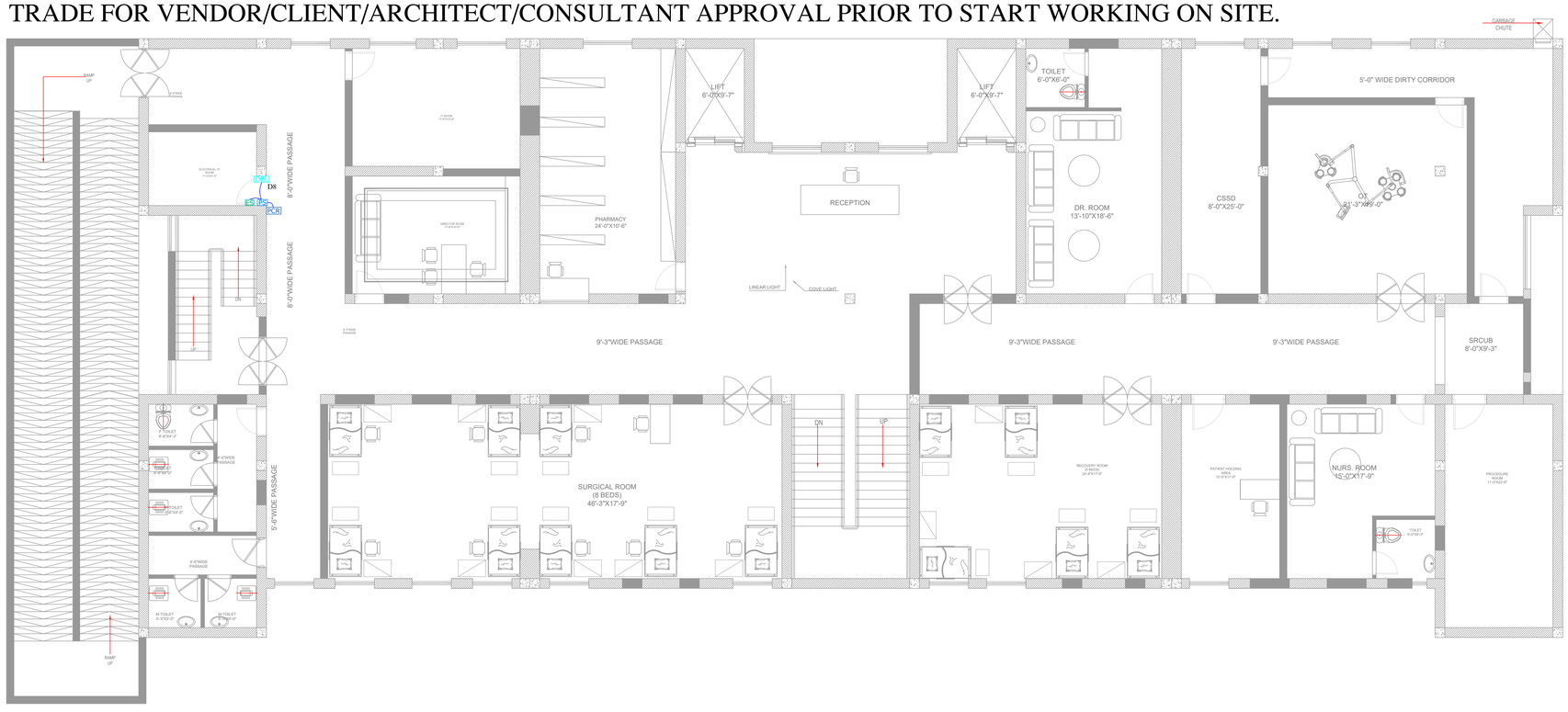
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



THIRD FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: EMERGENCY & EXIT SIGN LIGHTING LAYOUT (THIRD FLOOR)
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025	
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	DRAWING NO: MEP-04-06

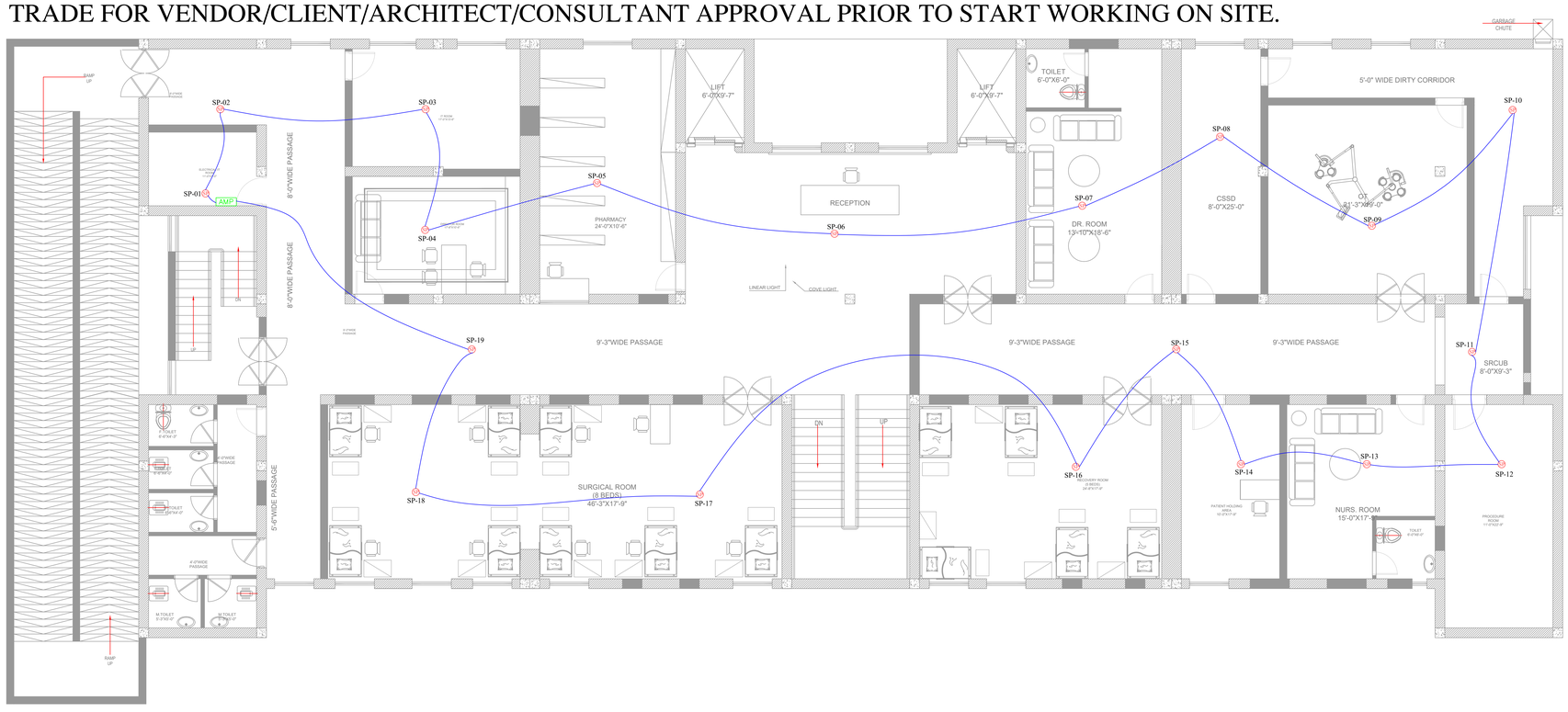
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



THIRD FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: ACCESS CONTROL LAYOUT (THIRD FLOOR)	DRAWING NO: MEP-04-07
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



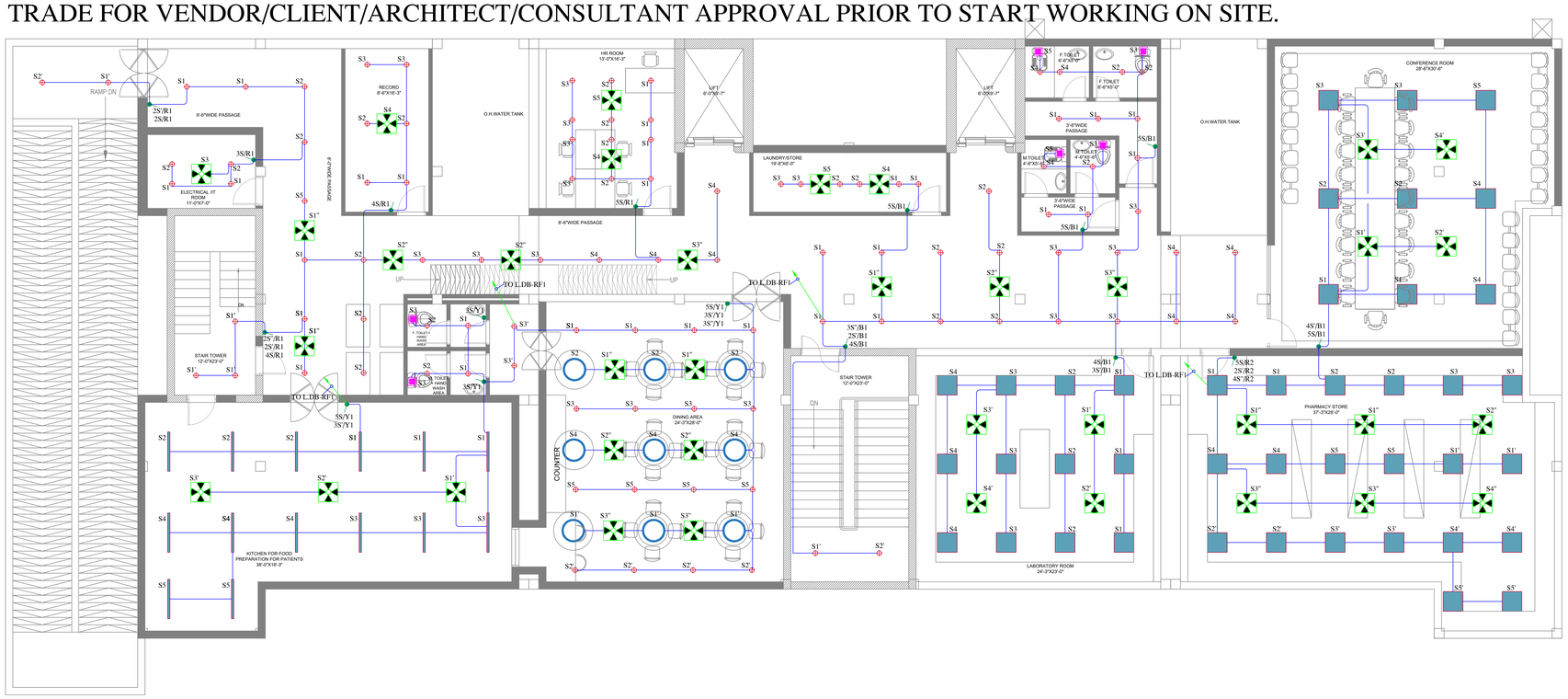
THIRD FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY				TITLE: MUSIC & SOUND SYSTEM LAYOUT (THIRD FLOOR)	DRAWING NO: MEP-04-08

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

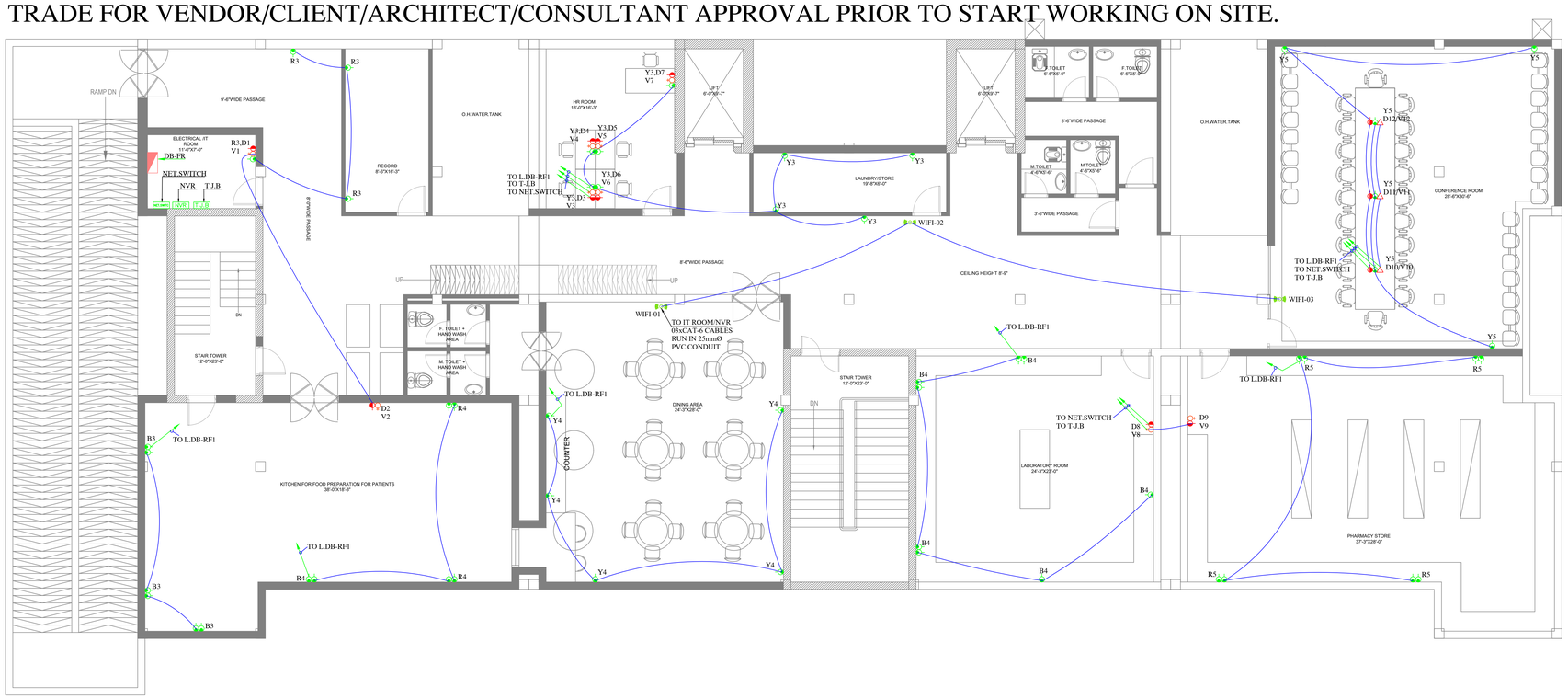
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



ROOF TOP

Project **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES CHECKED BY: NAEEM KHAN PRINCIPAL ENGR: ZUBAIR AHMED	SCALE: 1/16"=1'-0" DATE: 03-OCT-2025 JOB NO: ZAE-0825/12	TITLE LIGHTING LAYOUT (ROOF FLOOR)	DRAWING NO MEP-05-01

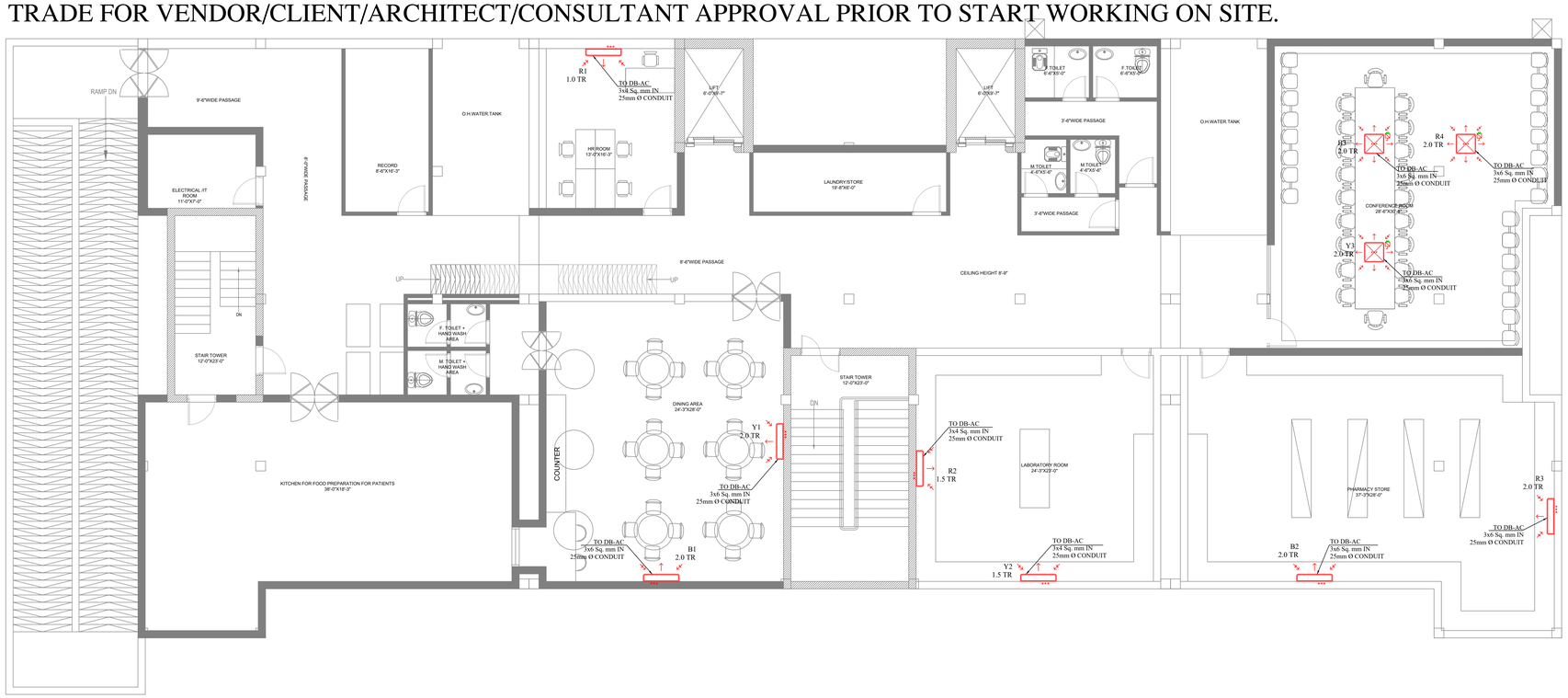
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



ROOF TOP

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: POWER,VOICE, & DATA LAYOUT (ROOF FLOOR)	DRAWING NO: MEP-05-02
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

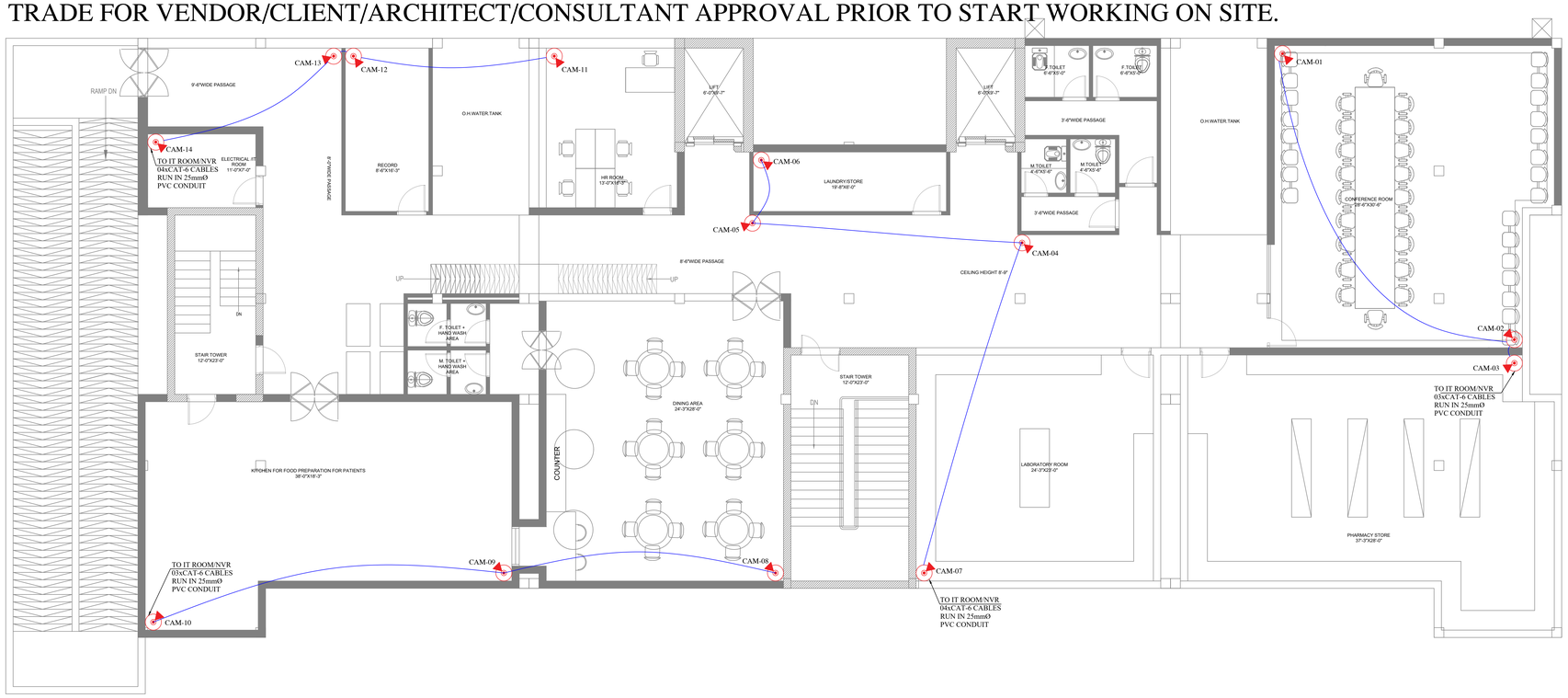
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



ROOF TOP

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY					
		No.	Date	Revision	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
		00	03/10/2025	*ISSUED FOR TENDER*	CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025
					PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12
		TITLE: SPLIT AC POWER LAYOUT (ROOF FLOOR)			DRAWING NO: MEP-05-03	

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



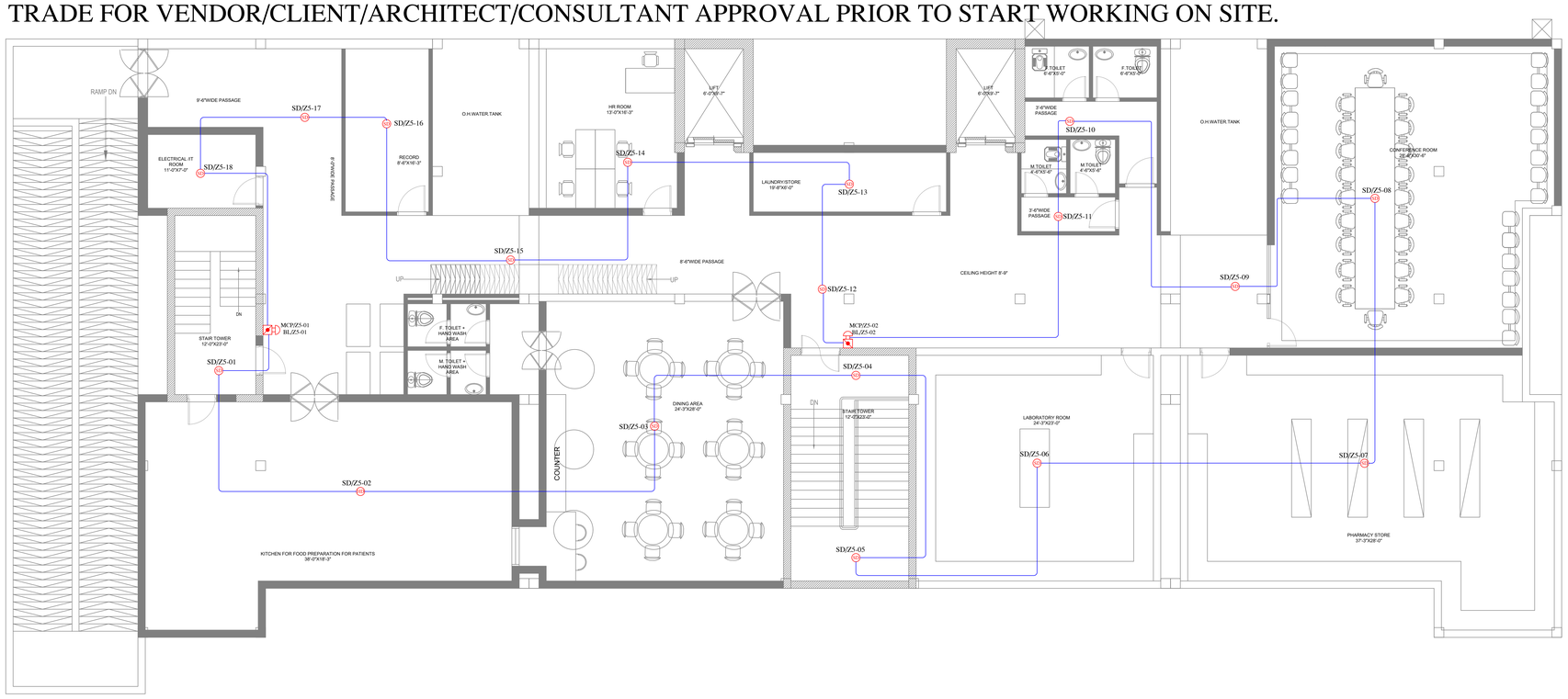
ROOF TOP

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY					
				DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: IP BASED CCTV SYSTEM LAYOUT (ROOF FLOOR)
				CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025	
				PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

DRAWING NO: MEP-05-04

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

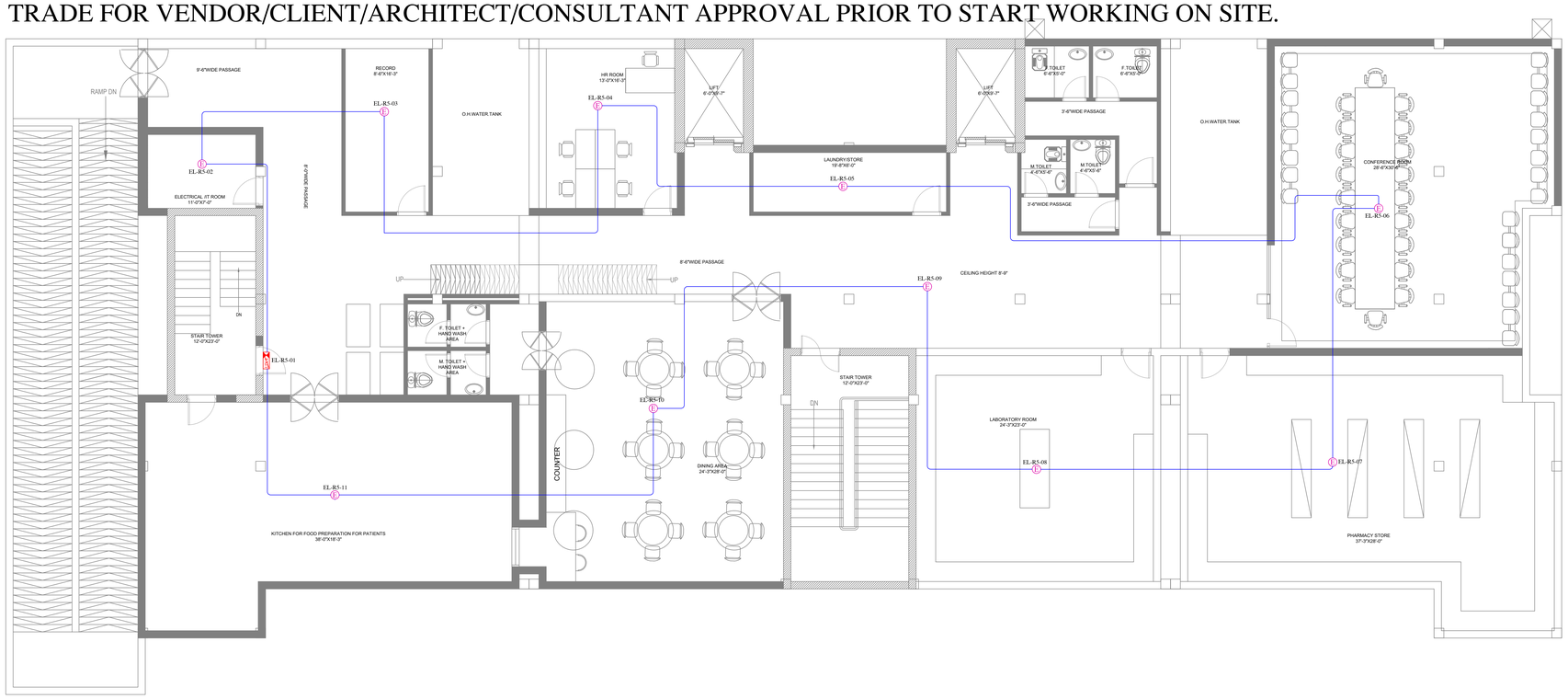


ROOF TOP

Project							
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY					TITLE	DRAWING NO
				DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	ADDRESSABLE FIRE ALARM SYSTEM LAYOUT (ROOF FLOOR)	MEP-05-05
				CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
				PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

No.	Date	Revision
00	03/10/2025	*ISSUED FOR TENDER*

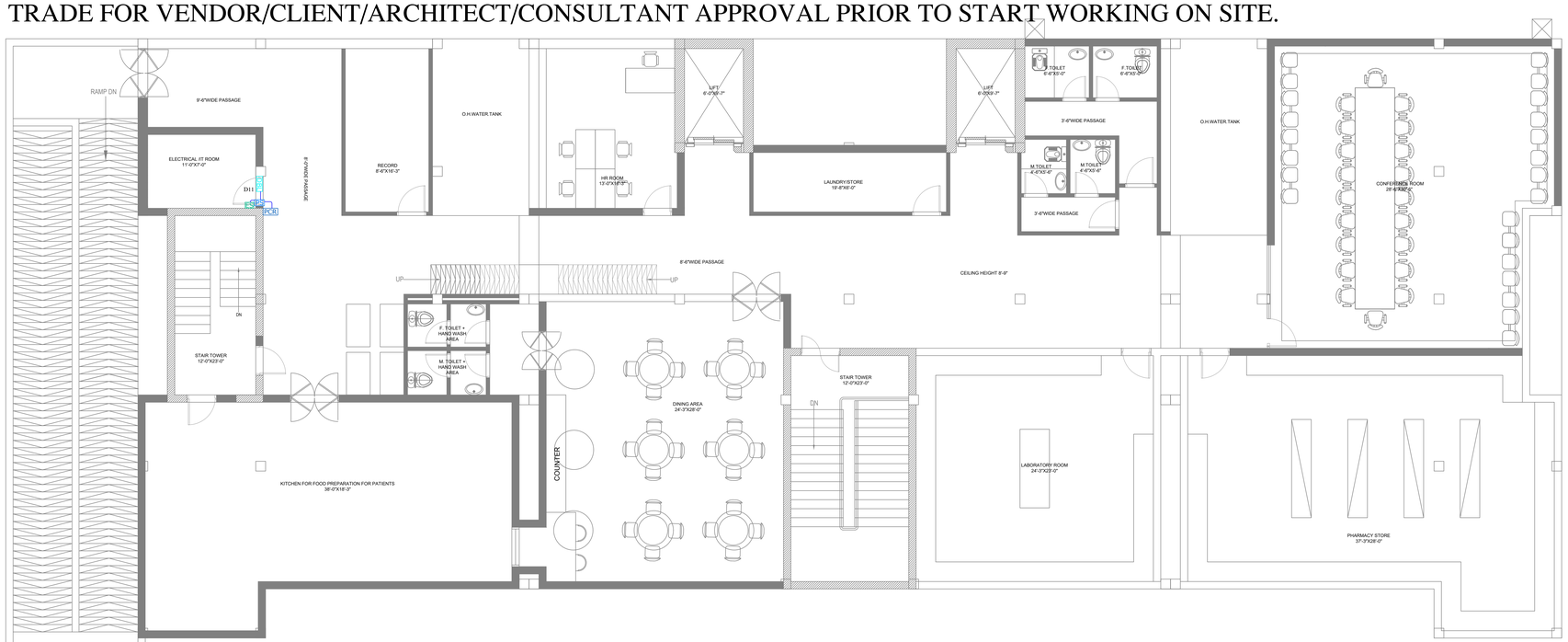
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



ROOF TOP

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: EMERGENCY & EXIT SIGN LIGHTING LAYOUT (ROOF FLOOR)	DRAWING NO: MEP-05-06
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

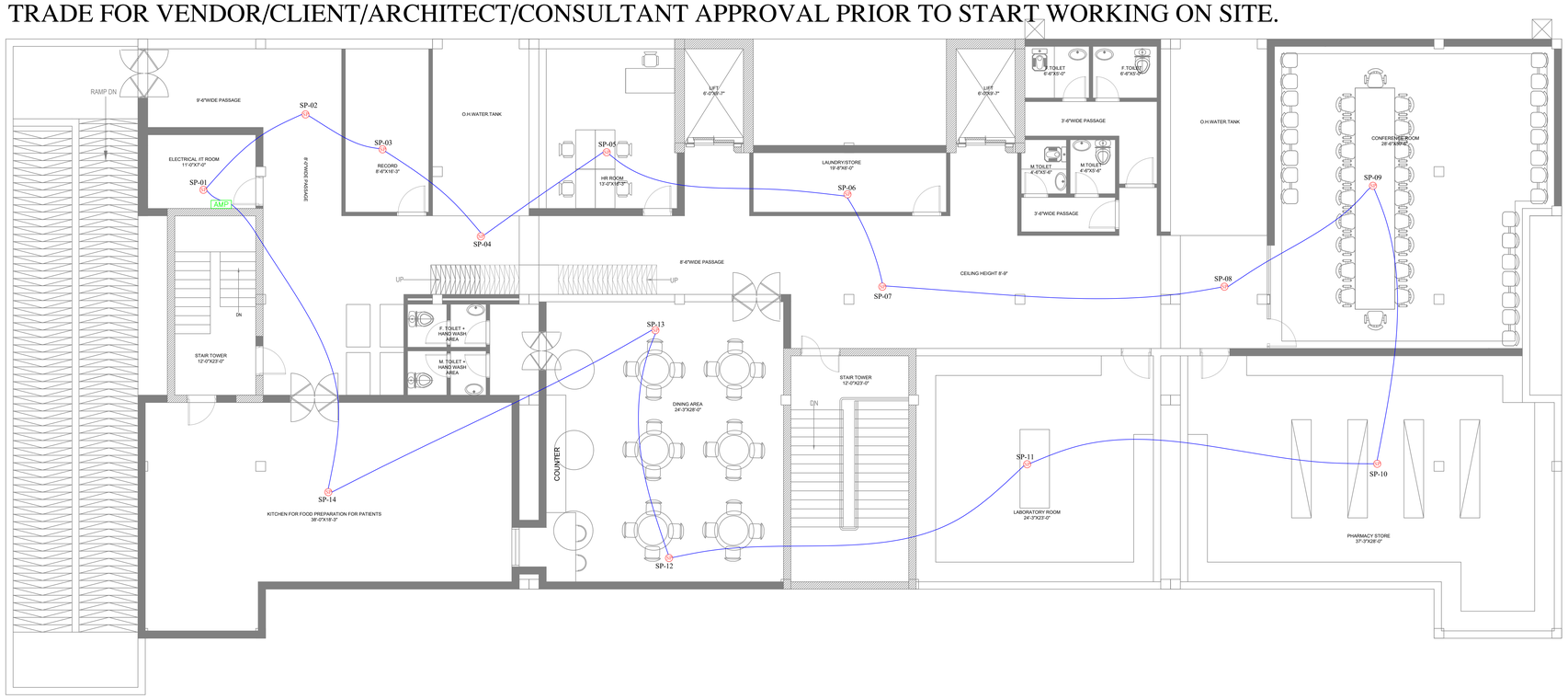
NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



ROOF TOP

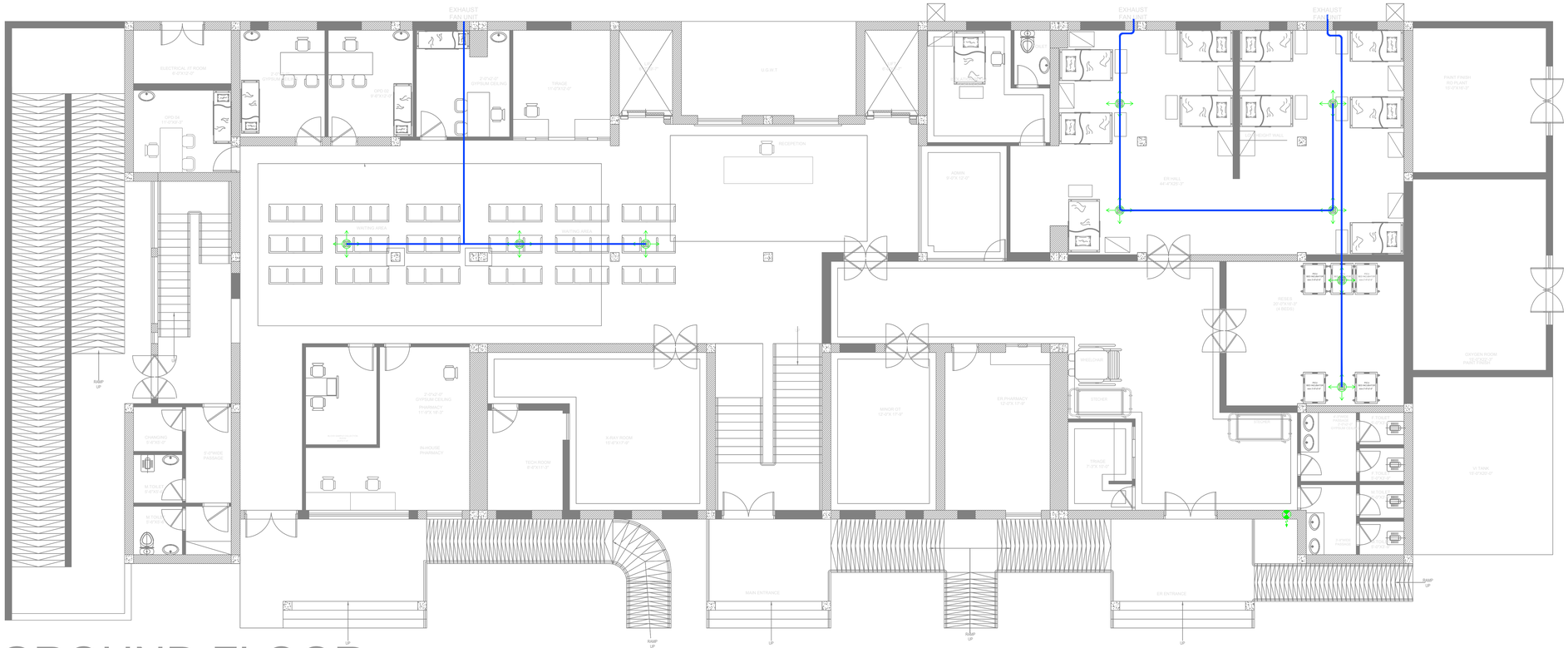
Project **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision 00 / 03/10/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE ACCESS CONTROL LAYOUT (ROOF FLOOR)	DRAWING NO MEP-05-07
			CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



ROOF TOP

Project							
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No.	Date	Revision	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: MUSIC & SOUND SYSTEMLAYOUT (ROOF FLOOR)
		00	03/10/2025	*ISSUED FOR TENDER*	CHECKED BY: NAEEM KHAN	DATE: 03-OCT-2025	
					PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	DRAWING NO: MEP-05-08



GROUND FLOOR

Project		
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	

No.	Date	Revision
00	13/09/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 13-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE: EXHAUST SYSTEM LAYOUT (GROUND FLOOR)

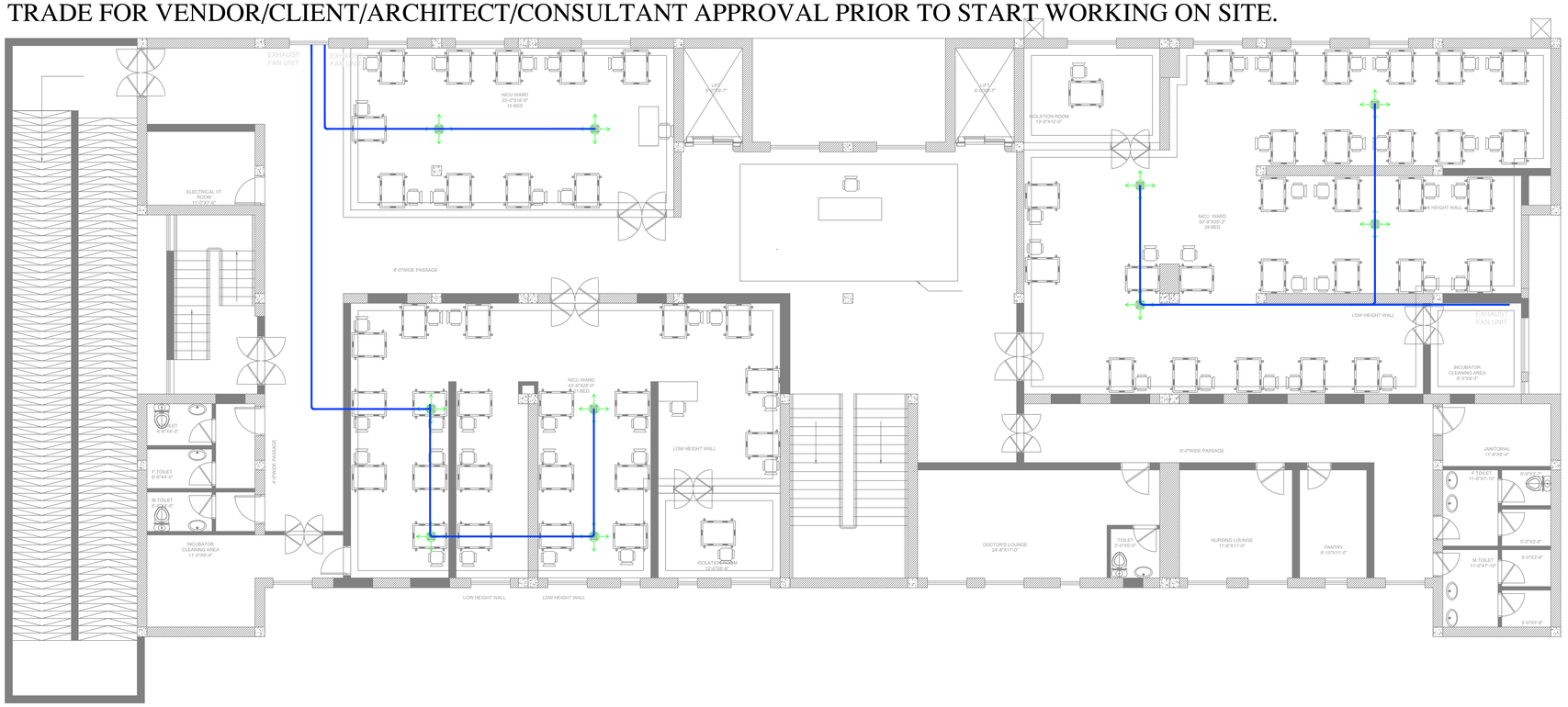
DRAWING NO: MEP-01-11

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.

FIRST FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	No. / Date / Revision: 00 / 13/09/2025 / *ISSUED FOR TENDER*	DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: EXHAUST SYSTEM LAYOUT (FIRST FLOOR)	DRAWING NO: MEP-02-10
			CHECKED BY: NAEEM KHAN	DATE: 13-SEP-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



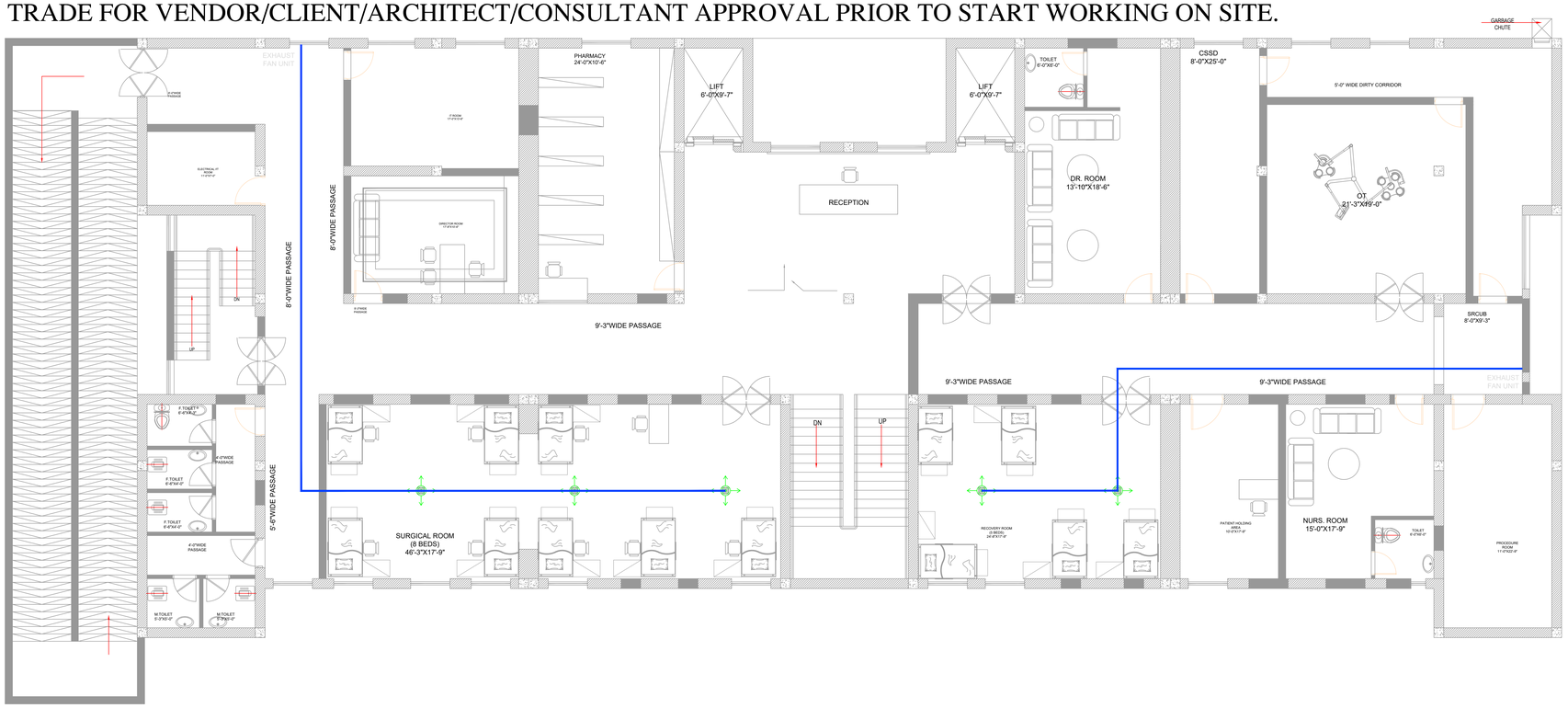
SECOND FLOOR

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY			TITLE: EXHAUST SYSTEM LAYOUT (SECOND FLOOR)	DRAWING NO: MEP-03-10

No.	Date	Revision
00	13/09/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 13-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



THIRD FLOOR

Project		
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY	

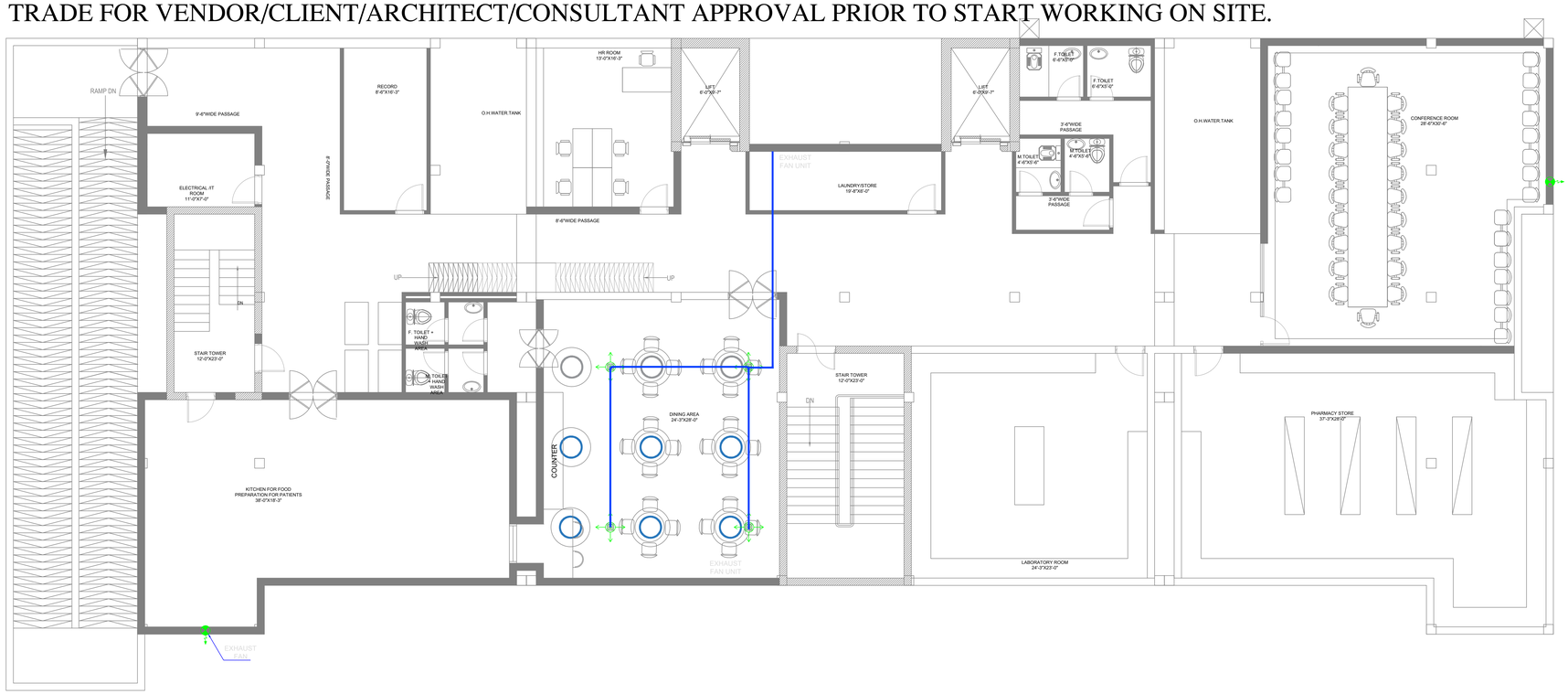
No.	Date	Revision
00	13/09/2025	*ISSUED FOR TENDER*

DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"
CHECKED BY: NAEEM KHAN	DATE: 13-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12

TITLE: EXHAUST SYSTEM LAYOUT (THIRD FLOOR)

DRAWING NO: MEP-04-10

NOTE: CONTRACTOR SHALL DEVELOP THE COORDINATED SHOP DRAWINGS FOR ENTIRE PROJECT/EACH TRADE FOR VENDOR/CLIENT/ARCHITECT/CONSULTANT APPROVAL PRIOR TO START WORKING ON SITE.



ROOF TOP

Project: **(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.**	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY					
				DRAWN BY: SALMAN SAEES	SCALE: 1/16"=1'-0"	TITLE: EXHAUST SYSTEM LAYOUT (ROOF FLOOR)
				CHECKED BY: NAEEM KHAN	DATE: 13-SEP-2025	
				PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	
No.	Date	Revision				DRAWING NO: MEP-05-10
00	13/09/2025	*ISSUED FOR TENDER*				

(SICHN) CIVIL HOSPITAL
MIRPUR KHAS SINDH.

DRAINAGE, WATER SUPPLY & ALLIED WORKS FOR PLUMBING SYSTEM DRAWINGS
(TENDER DRAWINGS)

LIST OF DRAWINGS

DWG. NO.	DRAWINGS TITLE
PS-00-00	TITLE SHEET & COVER PAGE
PS-01-01	LIST OF DRAWINGS (PLUMBING SYSTEM)
PS-02-01	LEGENDS & GENERAL NOTES (PLUMBING SYSTEM)
PS-03-01	MISCELLANEOUS DETAILS (PLUMBING SYSTEM)
DR-01-01	DRAINAGE LAYOUT FOR GROUND FLOOR PLAN (PLUMBING SYSTEM)
DR-02-01	DRAINAGE LAYOUT FOR FIRST FLOOR PLAN (PLUMBING SYSTEM)
DR-03-01	DRAINAGE LAYOUT FOR SECOND FLOOR PLAN (PLUMBING SYSTEM)
DR-04-01	DRAINAGE LAYOUT FOR THIRD FLOOR PLAN (PLUMBING SYSTEM)
DR-05-01	DRAINAGE LAYOUT FOR ROOF TOP PLAN (PLUMBING SYSTEM)
DR-06-01	DRAINAGE LAYOUT FOR ROOF O.H.W.T PLAN (PLUMBING SYSTEM)
DR-07-01	DRAINAGE LAYOUT FOR GROUND FLOOR ENLARGE PARTS PLAN (PLUMBING SYSTEM)
DR-08-01	DRAINAGE LAYOUT FOR FIRST FLOOR ENLARGE PARTS PLAN (PLUMBING SYSTEM)
DR-09-01	DRAINAGE LAYOUT FOR SECOND FLOOR ENLARGE PARTS PLAN (PLUMBING SYSTEM)
DR-10-01	DRAINAGE LAYOUT FOR THIRD FLOOR ENLARGE PARTS PLAN (PLUMBING SYSTEM)
DR-11-01	DRAINAGE LAYOUT FOR ROOF TOP ENLARGE PARTS PLAN (PLUMBING SYSTEM)
WS-01-01	WATER SUPPLY LAYOUT FOR GROUND FLOOR PLAN (PLUMBING SYSTEM)
WS-02-01	WATER SUPPLY LAYOUT FOR FIRST FLOOR PLAN (PLUMBING SYSTEM)
WS-03-01	WATER SUPPLY LAYOUT FOR SECOND FLOOR PLAN (PLUMBING SYSTEM)
WS-04-01	WATER SUPPLY LAYOUT FOR THIRD FLOOR PLAN (PLUMBING SYSTEM)
WS-05-01	WATER SUPPLY LAYOUT FOR ROOF TOP PLAN (PLUMBING SYSTEM)
WS-06-01	WATER SUPPLY LAYOUT FOR ROOF O.H.W.T PLAN (PLUMBING SYSTEM)
WS-07-01	WATER SUPPLY LAYOUT FOR GROUND FLOOR ENLARGE PARTS PLAN (PLUMBING SYSTEM)
WS-08-01	WATER SUPPLY LAYOUT FOR FIRST FLOOR ENLARGE PARTS PLAN (PLUMBING SYSTEM)
WS-09-01	WATER SUPPLY LAYOUT FOR SECOND FLOOR ENLARGE PARTS PLAN (PLUMBING SYSTEM)
WS-10-01	WATER SUPPLY LAYOUT FOR THIRD FLOOR ENLARGE PARTS PLAN (PLUMBING SYSTEM)
WS-11-01	WATER SUPPLY LAYOUT FOR ROOF TOP ENLARGE PARTS PLAN (PLUMBING SYSTEM)

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN

CHECKED BY: HUMAIR AHMED

PRINCIPAL ENGR: ZUBAIR AHMED

SCALE: @ A3 AS SHOWN

DATE: 29-SEP-2025

JOB NO: ZAE-0825/12

TITLE

LIST OF DRAWINGS (PLUMBING SYSTEM)

DRAWING NO

PS-01-01

1. INTENT OF THE DRAWINGS:

- CONTRACTOR SHOULD BE VISIT ON SITE AND PREPARE SHOP DRAWINGS FOR MEP CONSULTANT APPROVAL.
- THE DRAWINGS ARE DIAGRAMMATIC IN NATURE, AND SHOW THE GENERAL LOCATION OF PIPING, AND EQUIPMENT.
- THE DRAWINGS DO NOT SHOW ALL NECESSARY OFFSETS, TRANSITIONS, AND ADJUSTMENTS NECESSITATED BY COORDINATION WITH OTHER TRADES.
- THE COST OF ALL OFFSETS, TRANSITIONS, AND ADJUSTMENTS NECESSITATED BY COORDINATION WITH OTHER TRADES SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

2. COORDINATION WITH OTHER TRADES:

- EXAMINE AND REVIEW THE CONTRACT DOCUMENTS OF ALL DIVISIONS OF THE SPECIFICATIONS IN ORDER TO COORDINATE THE INSTALLATION OF WORK.
- USE DIMENSIONED ARCHITECTURAL AND STRUCTURAL CONTRACT DRAWINGS TO VERIFY THE SPACE NECESSARY FOR LOCATING PIPING, DUCTWORK, AND EQUIPMENT. USE FIELD MEASUREMENTS TO VERIFY DIMENSIONS WHERE AREAS ARE CONGESTED, AND EXACT LOCATION IS CRITICAL TO ASSURE PROPER INSTALLATION.
- COORDINATION SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, VERIFYING THE LOCATION AND SIZE OF OPENINGS IN FLOORS, WALLS, PARTITIONS, CEILINGS, AND ROOFS WITH THE INSTALLING TRADES; ALLOCATION OF SPACE WITH OTHER TRADES INSTALLING WORK IN CHASES, SHAFTS, CEILING INTERSTITIAL SPACES, AND EQUIPMENT SPACES; AND THE PHASING OF INSTALLATION WORK WITH THAT OF OTHER TRADES.

3. WORKMANSHIP:

- INSTALL ALL WORK IN A WORKMANLIKE MANNER THAT PROVIDES A PROFESSIONAL, COMPLETED INSTALLATION.

4. EQUIPMENT:

- INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, THE SPECIFICATIONS, AND APPROVED SHOP DRAWINGS.
- PROVIDE SERVICE AND OPERATING CLEARANCES AROUND ALL SIDES OF EACH PIECE OF EQUIPMENT IN ACCORDANCE WITH CODE AND THE MANUFACTURER'S PRINTED REQUIREMENTS AND RECOMMENDATIONS.
- PROVIDE 4" (100mm) HIGH CONCRETE HOUSE KEEPING PADS EXTENDING 6" (150mm) BEYOND ALL FLOOR MOUNTED EQUIPMENT ON ALL SIDES.

5. LARGE EQUIPMENT:

- SOME LARGE EQUIPMENT MAY REQUIRE DISASSEMBLY IN ORDER TO INSTALL IN SIDE THE BUILDING. SECURE THE SERVICES OF THE MANUFACTURER WHERE NECESSARY TO MAINTAIN WARRANTIES IN EFFECT.

6. PIPING:

- FABRICATE AND INSTALL ALL PIPING IN ACCORDANCE WITH THE SPECIFICATIONS; THE PIPING PLANS AND DETAILS; AND THE PIPE INSULATION SCHEDULE.
- PIPING SCHEMATICS AND DIAGRAMS SHOW ONLY THE BASIC FLOW PATTERN AND EQUIPMENT ARRANGEMENT, AND DO NOT SHOW ALL TERMINAL EQUIPMENT CONNECTED TO THE SYSTEM. REFER TO THE PLANS AND SECTIONS FOR DETAILED SYSTEM LAYOUT.
- PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS IN THE PIPING SYSTEM. PROVIDE 3/4" (20mm) HOSE BIB TYPE DRAIN VALVES AT ALL LOW POINTS IN THE PIPING SYSTEM TO ASSURE COMPLETE DRAIN ABILITY OF THE SYSTEM. TERMINATE DRAIN VALVES AND AIR VENTS IN ACCESSIBLE LOCATIONS.
- ALL PIPE SIZES FOR WATER SUPPLY (PPR) ARE OUTER DIA.

7. SLEEVES:

- DIMENSIONED AND COORDINATED SHOP DRAWINGS INDICATING THE LOCATION AND SIZE OF ALL SLEEVES AND CAST IN PLACE ITEMS NECESSARY FOR ALL WORK REQUIRED SHALL BE FURNISHED TO THE PRE-CAST CONCRETE FABRICATOR BEFORE THE FABRICATION OF THE PRE-CAST CONCRETE WORK.
- ALL PIPES PASSING THROUGH WALLS SHALL HAVE SLEEVE ONE SIZE LARGER THAN PIPE DIA.
- ALL SLEEVES AND OPENING TO BE FILLED WITH NON SHRINK GROUT.

8. PIPE MATERIAL:

- SOIL, WASTE & VENT (SWV) PIPE INSIDE THE BUILDING (uPVC) PUSH ON JOINT.
- ALL WATER SUPPLY PIPE OUTSIDE THE BUILDING WILL BE (P.E).
- ALL SANITARY SEWER PIPE OUTSIDE THE BUILDING ARE PVC.

SCHEDULE OF MANHOLE

TYPE	SIZE OF LARGEST PIPE (Millimeters)	CIRCULAR DIAMETER (Millimeters)	CIRCULAR COVER DIAMETER (Millimeters)
<1.5m DEEP TO SOFFIT	200	1200	600
	300	1200	600
>1.5m DEEP TO SOFFIT	200	1200	600
	300	1200	600
>3.0m DEEP TO SOFFIT OF PIPE	STEPS	1050	600
	LADDER	1200	600

SCHEDULE OF PIPE SUPPORTS (SWV) FOR uPVC PIPES (INSIDE THE BUILDING)

PIPE SIZE	HORIZONTAL DIST.	VERTICAL DIST.
32ø TO 40ø	10 TIME DIA OF PIPE	15 TIME DIA OF PIPE
50ø	10 TIME DIA OF PIPE	15 TIME DIA OF PIPE
75ø & 100ø	10 TIME DIA OF PIPE	15 TIME DIA OF PIPE
150ø TO 200ø	10 TIME DIA OF PIPE	15 TIME DIA OF PIPE

- SUPPORT IN ALL CHANGES IN DIRECTION & UNDER FLOOR GULLY.
- ALL PPR PIPE SUPPORTS RECOMMENDED AS PER MANUFACTURE.

RECOMMENDED uPVC PIPE SLOPES

PIPE SIZES	SLOPE RATIO
40ø TO 50ø	1:70, 1:100
75ø & 150ø	1:130
200ø TO 250ø	1:250
300ø	1:450

MANHOLE DEPTH	DETAILS
<1 METER	600mm x 600mm
<1.75 METER	900mm x 600mm or ø 1000 mm
<2.5 METER	1200mm x 750mm or ø 1200 mm
>2.5 METER	1400mm x 900mmor ø 1400 mm

LEGEND

ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
	COLD WATER PIPE FOR IRRIGATION
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
MS/WC	MUSLIM SHOWER/WATER CLOSET PIPE
IRR	IRRIGATION PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
PD	PRESSURIZED DRAIN PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
NRV	NON RETURN VALVE
MS	MUSLIM SHOWER
GT	GULLY TRAP
MH	MANHOLE
RD	ROOF DRAIN
PRV	PRESSURE RELIEVE VALVE
HB	HOSE BIB
BC	BIB COCK
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
F/A	FROM ABOVE
T/A	TO ABOVE
F/B	FROM BELOW
T/B	TO BELOW
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

EQUIVALENT PIPES FOR WATER SUPPLY SYSTEM

PPR-C PIPE	U-PVC PIPE
20mmØ PIPE	1/2"Ø PIPE
25mmØ PIPE	3/4"Ø PIPE
32mmØ PIPE	1"Ø PIPE
40mmØ PIPE	1-1/4"Ø PIPE
50mmØ PIPE	1-1/2"Ø PIPE
63mmØ PIPE	2"Ø PIPE

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

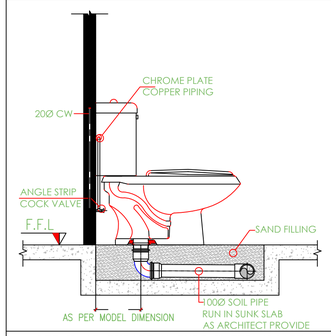
SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

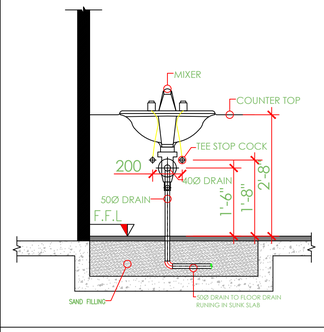
DRAWN BY: MUHAMMAD AYAN
CHECKED BY: HUMAIR AHMED
PRINCIPAL ENGR: ZUBAIR AHMED
SCALE: @ A3 AS SHOWN
DATE: 29-SEP-2025
JOB NO: ZAE-0825/12

TITLE: **LEGENDS & GENERAL NOTES (PLUMBING SYSTEM)**

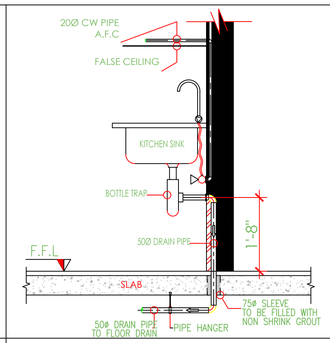
DRAWING NO: PS-02-01



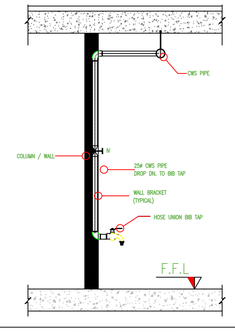
DETAIL OF EUROPEAN TYPE WATER CLOSET



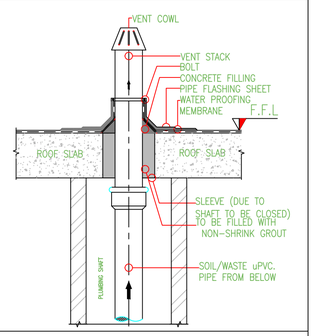
DETAIL OF LAVATORY



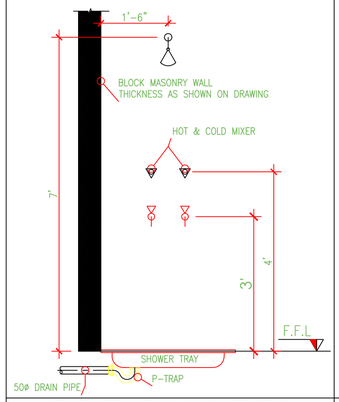
SIDE VIEW DETAIL OF KITCHEN SINK



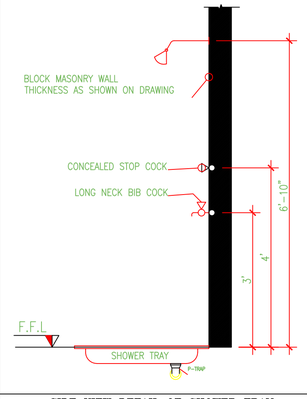
BIB TAP DETAIL



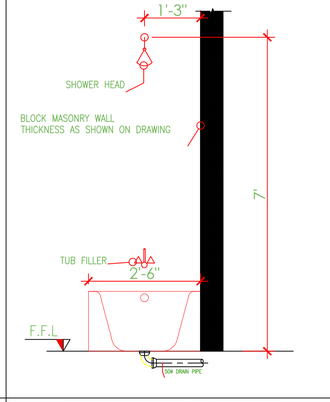
DETAIL OF VENT THRU AT ROOF LEVEL



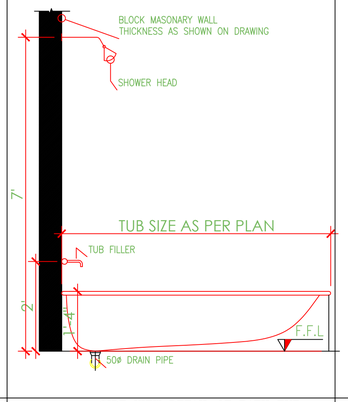
FRONT VIEW DETAIL OF SHOWER TRAY



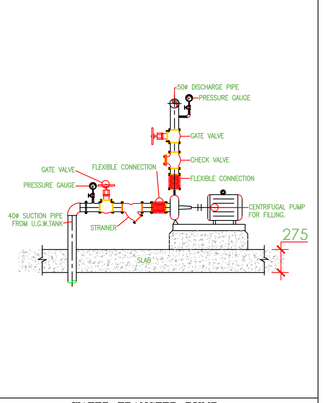
SIDE VIEW DETAIL OF SHOWER TRAY



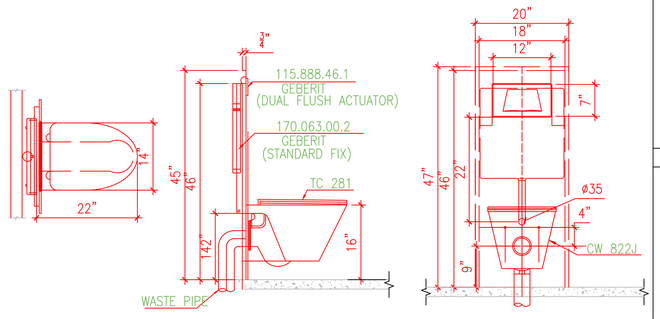
FRONT VIEW DETAIL OF BATH TUB



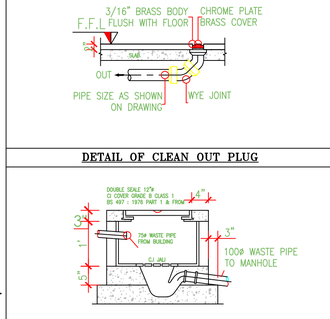
SIDE VIEW DETAIL OF BATH TUB



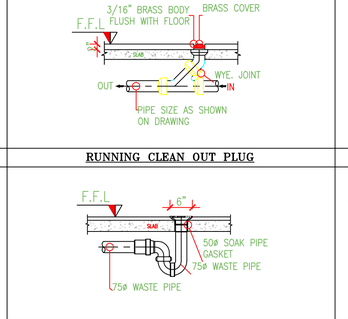
WATER TRANSFER PUMP



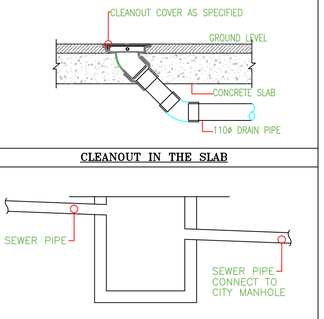
DETAIL OF WALL HUNG WATER CLOSET



DETAIL OF CLEAN OUT PLUG



RUNNING CLEAN OUT PLUG

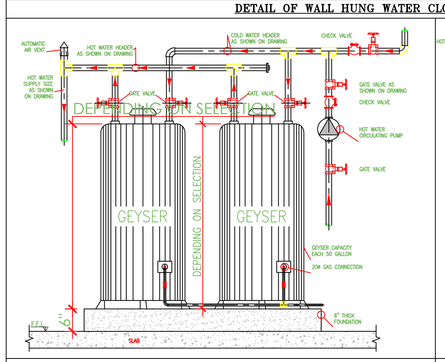


CLEANOUT IN THE SLAB

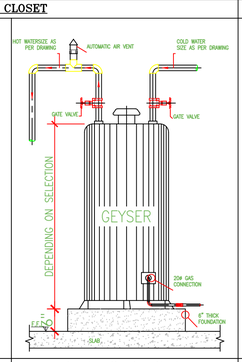
DETAIL OF GULLY TRAP

DETAIL OF FLOOR DRAIN

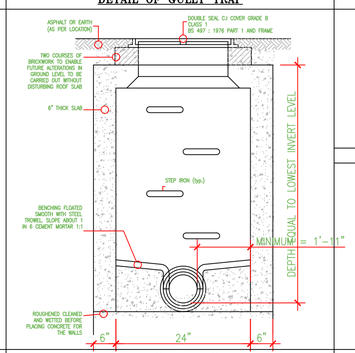
TYPICAL DETAIL OF SEPTIC TANK



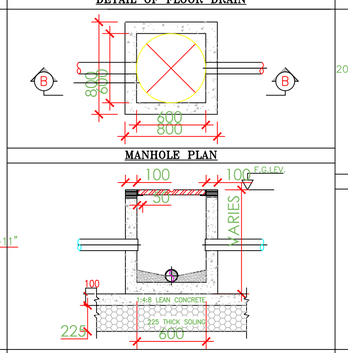
DETAIL OF GEYSER 2NOS.



DETAIL OF GEYSER

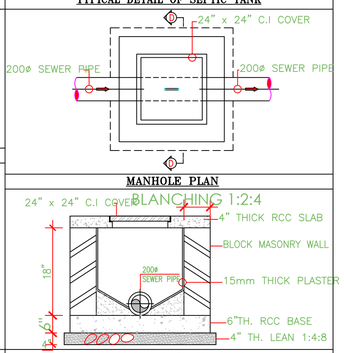


DETAIL OF MANHOLE



MANHOLE PLAN

MANHOLE SECTION B–B



MANHOLE PLAN

MANHOLE SECTION D–D

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN

CHECKED BY: HUMAIR AHMED

PRINCIPAL ENGR: ZUBAIR AHMED

SCALE: @ A3 AS SHOWN

DATE: 29-SEP-2025

JOB NO: ZAE-0825/12

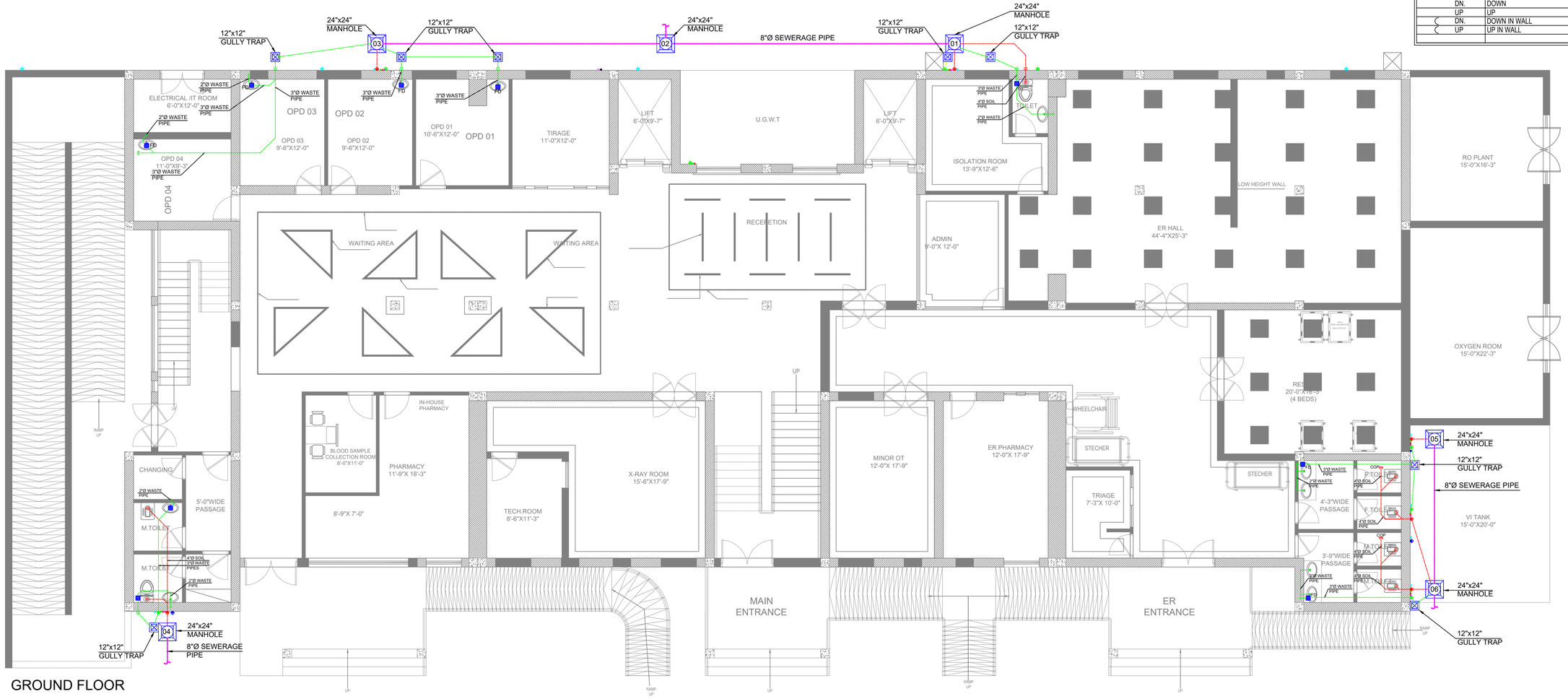
TITLE

MISCELLANEOUS DETAILS (PLUMBING SYSTEM)

DRAWING NO

PS-03-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL



GROUND FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN

SCALE: @ A3 AS SHOWN

CHECKED BY: HUMAIR AHMED

DATE: 29-SEP-2025

PRINCIPAL ENGR: ZUBAIR AHMED

JOB NO: ZAE-0825/12

TITLE

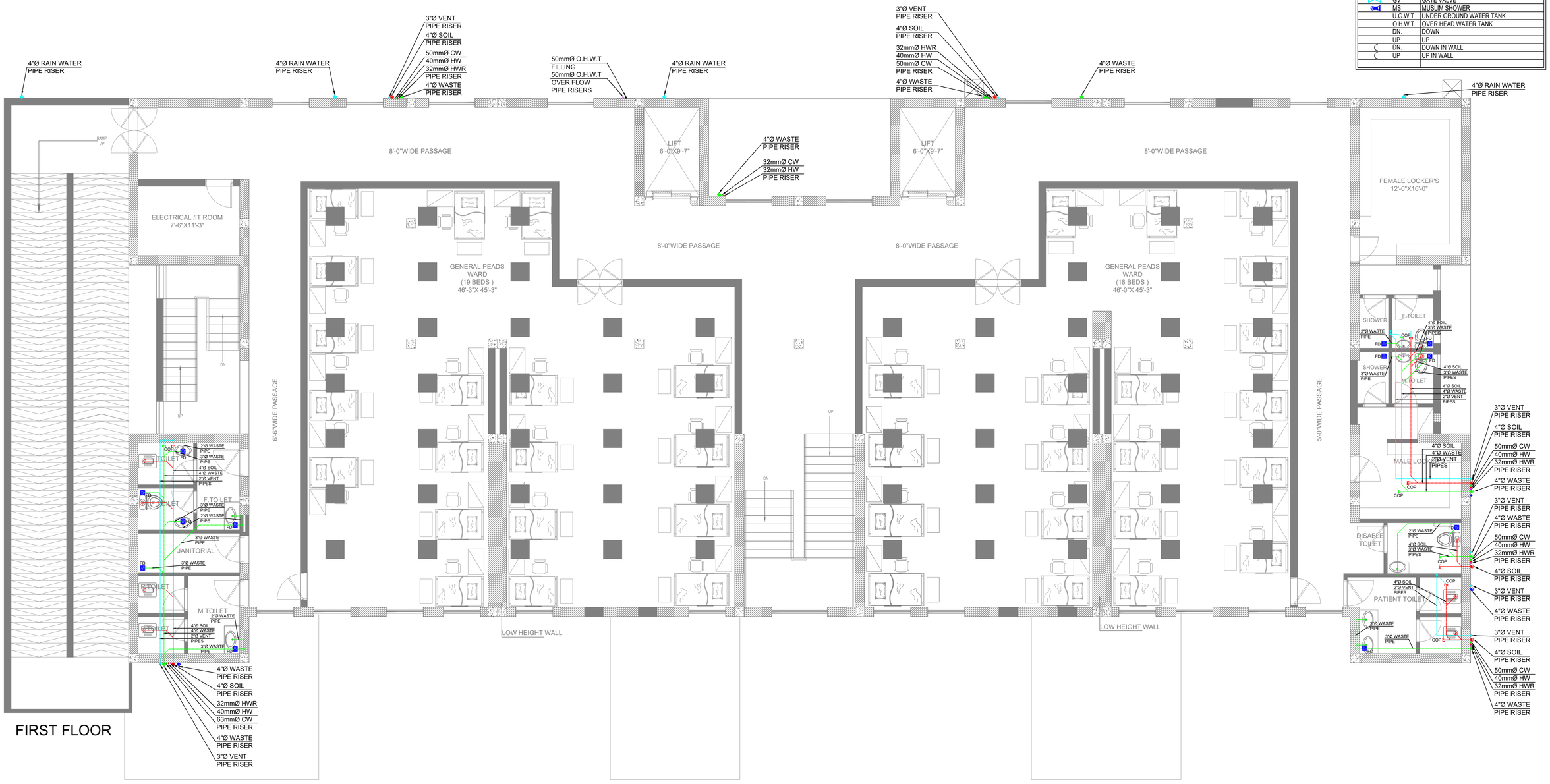
DRAINAGE LAYOUT FOR GROUND FLOOR (PLUMBING SYSTEM)

DRAWING NO

DR-01-01

LEGEND

ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL



FIRST FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

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No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN
CHECKED BY: HUMAIR AHMED
PRINCIPAL ENGR: ZUBAIR AHMED
SCALE: @ A3 3/32"=1'-0"
DATE: 29-SEP-2025
JOB NO: ZAE-0825/12

TITLE

DRAINAGE LAYOUT FOR FIRST FLOOR (PLUMBING SYSTEM)

DRAWING NO

DR-02-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

4"Ø RAIN WATER PIPE RISER
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ O.H.W.T FILLING
50mmØ O.H.W.T OVER FLOW PIPE RISERS
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
50mmØ CW PIPE RISER
4"Ø WASTE PIPE RISER
4"Ø WASTE PIPE RISER
4"Ø RAIN WATER PIPE RISER

RAMP UP
ELECTRICAL /IT ROOM 11'-0"X7'-6"
NICU WARD 33'-0"X16'-6" 10 BED
LIFT 6'-0"X9'-7"
4"Ø WASTE PIPE RISER
32mmØ CW
32mmØ HW PIPE RISER
LIFT 6'-0"X9'-7"
RECEPTION
ISOLATION ROOM 13'-9"X10'-0"
NICU WARD 50'-9"X35'-3" 28 BED
INCUBATOR CLEANING AREA 9'-3"X9'-3"
8'-0"WIDE PASSAGE
NICU WARD 43'-9"X28'-0" 21 BED
ISOLATION ROOM 12'-6"X8'-6"
6'-0"WIDE PASSAGE
DOCTOR'S LOUNGE 24'-8"X11'-0"
NURSING LOUNGE 11'-6"X11'-0"
PANTRY 6'-10"X11'-0"
JANITORIAL
F.TOILET
M.TOILET
TOILET
P.TOILET 6'-6"X4'-0"
T.TOILET
M.TOILET
INCUBATOR CLEANING AREA 11'-0"X9'-4"
4'-0"WIDE PASSAGE

2"Ø WASTE PIPE
4"Ø SOIL
4"Ø WASTE
2"Ø VENT PIPES
3"Ø WASTE PIPE
4"Ø SOIL
4"Ø WASTE
2"Ø VENT PIPES
4"Ø SOIL
4"Ø WASTE
2"Ø VENT PIPES
4"Ø WASTE PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
63mmØ CW PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø SOIL PIPE RISER
3"Ø VENT PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER

SECOND FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN
SCALE: @ A3 3/32"=1'-0"
CHECKED BY: HUMAIR AHMED
DATE: 29-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE

DRAINAGE LAYOUT FOR SECOND FLOOR (PLUMBING SYSTEM)

DRAWING NO

DR-03-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

4"Ø RAIN WATER PIPE RISER
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR
PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ O.H.W.T FILLING
50mmØ O.H.W.T OVER FLOW PIPE RISERS
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
50mmØ CW
PIPE RISER
4"Ø WASTE PIPE RISER
4"Ø WASTE PIPE RISER
GARBAGE CHUTE
4"Ø RAIN WATER PIPE RISER

RAMP UP
8'-0"WIDE PASSAGE
ELECTRICAL /IT ROOM 11'-0"X7'-0"
8'-0"WIDE PASSAGE
8'-0"WIDE PASSAGE
IT ROOM 17'-0"X13'-6"
DIRECTOR ROOM 17'-8"X10'-6"
PHARMACY 24'-0"X10'-6"
LIFT 6'-0"X9'-7"
4"Ø WASTE PIPE RISER
32mmØ CW
32mmØ HW
PIPE RISER
RECEPTION
LIFT 6'-0"X9'-7"
TOILET
4"Ø SOIL 3"Ø WASTE PIPES
2"Ø WASTE PIPE
FD
DR. ROOM 13'-10"X18'-6"
CSSD 8'-0"X25'-0"
5'-0" WIDE DIRTY CORRIDOR
OT 21'-3"X19'-0"
CEILING HEIGHT 8'-9"
9'-3"WIDE PASSAGE
9'-3"WIDE PASSAGE
9'-3"WIDE PASSAGE
9'-3"WIDE PASSAGE
SCRUB 8'-0"X[illegible]
DN
UP
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR
PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR
PIPE RISER
4"Ø SOIL PIPE RISER
3"Ø VENT PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR
PIPE RISER
4"Ø WASTE PIPE RISER

RAMP UP
2"Ø WASTE PIPE
COP
FD
4"Ø SOIL
4"Ø WASTE
2"Ø VENT PIPES
2"Ø WASTE PIPE
4'-0"WIDE PASSAGE
F.TOILET
3"Ø WASTE PIPE
F.TOILET
2"Ø WASTE PIPE
4'-0"WIDE PASSAGE
3"Ø WASTE PIPE
4"Ø SOIL
4"Ø WASTE
2"Ø VENT PIPES
M.TOILET
4"Ø SOIL PIPE
M.TOILET
3"Ø WASTE PIPE
5'-6"WIDE PASSAGE
SURGICAL ROOM (8 BEDS) 46'-3"X17'-9"
RECOVERY ROOM (5 BEDS) 24'-8"X17'-9"
PATIENT HOLDING AREA 10'-0"X17'-9"
NURS. ROOM 15'-0"X17'-9"
3"Ø WASTE PIPE
2"Ø VENT PIPE
FD
4"Ø SOIL PIPE
TOILET
2"Ø WASTE PIPE
PROCEDURE ROOM 11'-0"X22'-
4"Ø WASTE PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
63mmØ CW
PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER

THIRD FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN
SCALE: @ A3 3/32"=1'-0"
CHECKED BY: HUMAIR AHMED
DATE: 29-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE

DRAINAGE LAYOUT FOR THIRD FLOOR (PLUMBING SYSTEM)

DRAWING NO

DR-04-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

4"Ø RAIN WATER PIPE RISER
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ O.H.W.T FILLING
50mmØ O.H.W.T OVER FLOW PIPE RISERS
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
50mmØ CW PIPE RISER
4"Ø WASTE PIPE RISER
4"Ø WASTE PIPE RISER
4"Ø RAIN WATER PIPE RISER

RAMP DN
9'-6"WIDE PASSAGE
ELECTRICAL /IT ROOM 11'-0"X7'-0"
8'-0"WIDE PASSAGE
STAIR TOWER 12'-0"X23'-0"
DN
4"Ø SOIL 4"Ø WASTE 2"Ø VENT PIPES
RECORD 8'-6"X16'-3"
O.H.WATER.TANK
HR ROOM 13'-0"X16'-3"
LIFT 6'-0"X9'-7"
4"Ø WASTE PIPE RISER
32mmØ CW 32mmØ HW PIPE RISER
4"Ø WASTE PIPE
FD
LAUNDRY/STORE 19'-8"X6'-0"
LIFT 6'-0"X9'-7"
4"Ø SOIL 4"Ø WASTE 2"Ø VENT PIPES
2"Ø WASTE PIPE
3"Ø WASTE PIPE
F.TOILET
F.TOILET
3'-6"WIDE PASSAGE
4"Ø SOIL PIPE
2"Ø WASTE PIPE
3"Ø WASTE PIPE
FD
COP
M.TOILET
M.TOILET
3'-6"WIDE PASSAGE
O.H.WATER.TANK
4"Ø WASTE PIPE
4'-6"
4'-6"
CONFERENCE ROOM 28'-6"
4'-6"
8'-6"WIDE PASSAGE
UP
UP
FOOD TROLLEY
3"Ø WASTE PIPE
2"Ø WASTE PIPE
FD
3"Ø WASTE PIPE
F. TOILET + HAND WASH AREA
M. TOILET + HAND WASH AREA
4"Ø SOIL 4"Ø WASTE 2"Ø VENT PIPES
3"Ø WASTE PIPE
FD
COP
3"Ø WASTE PIPE
2"Ø WASTE PIPE
CEILING HEIGHT 8'-9"
DINING AREA 24'-3"X28'-0"
COUNTER
STAIR TOWER 12'-0"X23'-0"
DN
4"Ø WASTE PIPE
LABORATORY ROOM 24'-3"X23'-0"
PHARMACY STORE 37'-3"X28'-0"
KITCHEN FOR FOOD PREPARATION FOR PATIENTS 38'-0"X18'-3"
4"Ø WASTE WASTE PIPE
ROOF TOP PLAN
4"Ø WASTE PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
63mmØ CW PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø SOIL PIPE RISER
3"Ø VENT PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

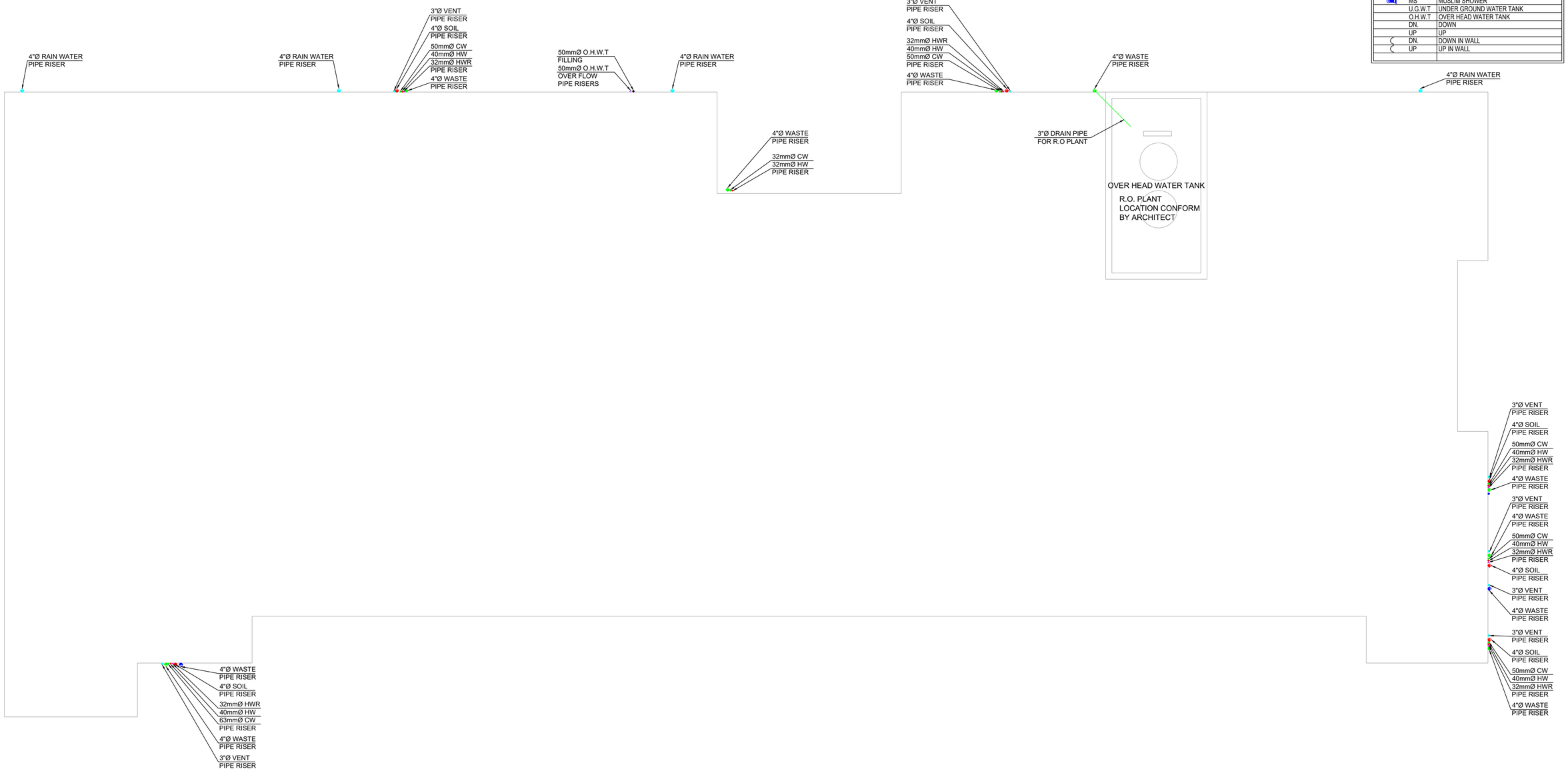
DRAWN BY: MUHAMMAD AYAN
SCALE: @ A3 3/32"=1'-0"
CHECKED BY: HUMAIR AHMED
DATE: 29-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE

DRAINAGE LAYOUT FOR ROOF TOP (PLUMBING SYSTEM)

DRAWING NO

DR-05-01



LEGEND

ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN

SCALE: @ A3 3/32"=1'-0"

CHECKED BY: HUMAIR AHMED

DATE: 29-SEP-2025

PRINCIPAL ENGR: ZUBAIR AHMED

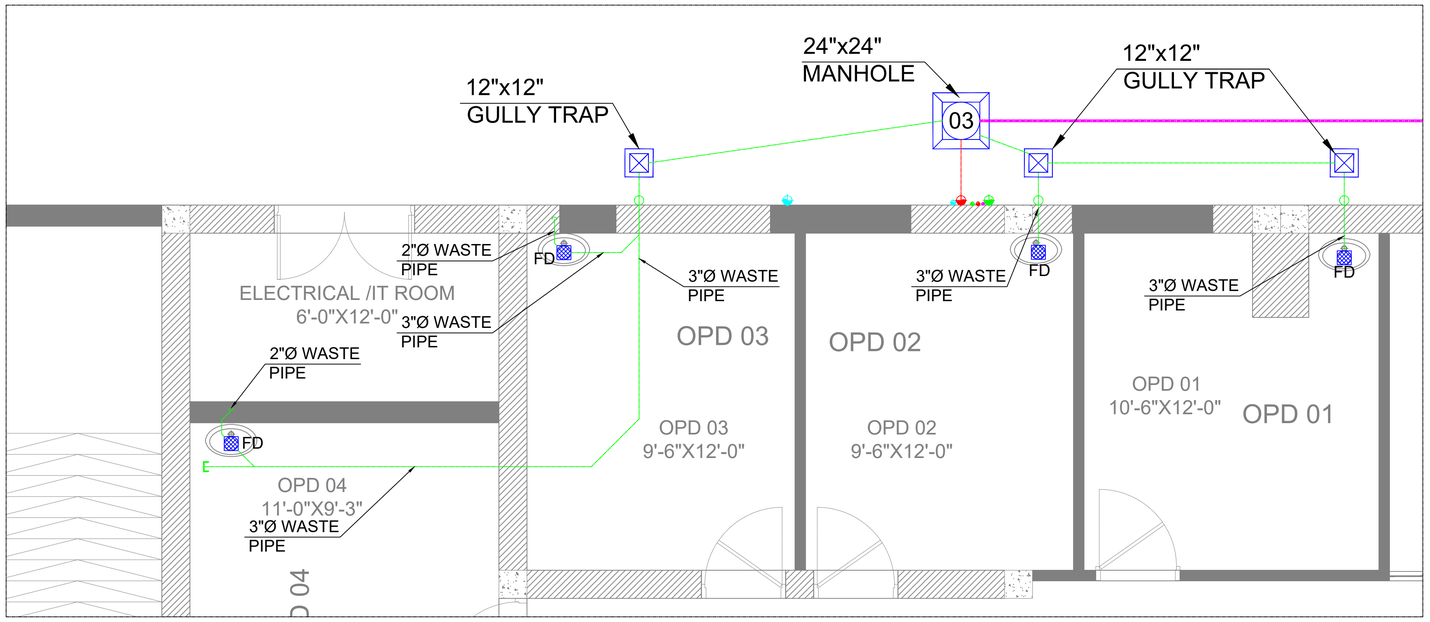
JOB NO: ZAE-0825/12

TITLE

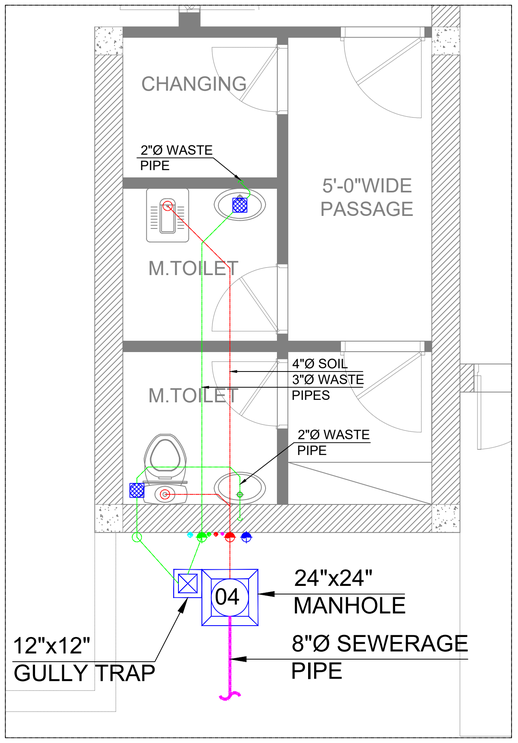
DRAINAGE LAYOUT FOR ROOF PLAN O.H.W.T. (PLUMBING SYSTEM)

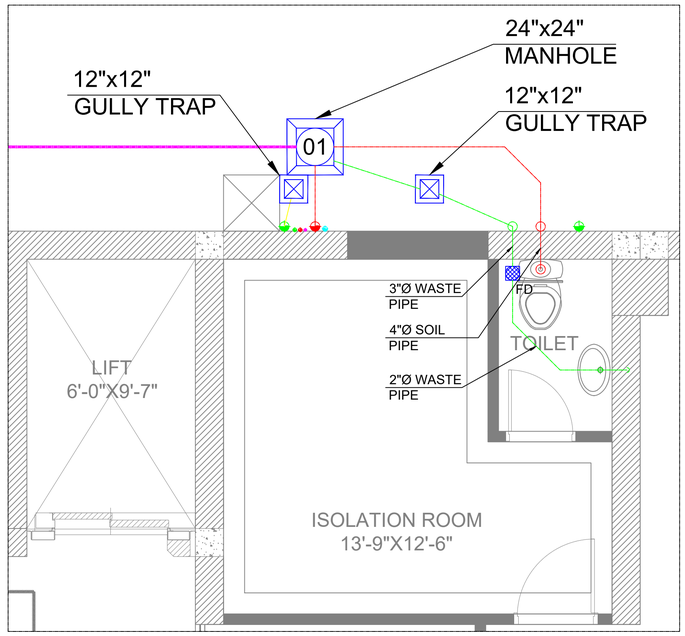
DRAWING NO

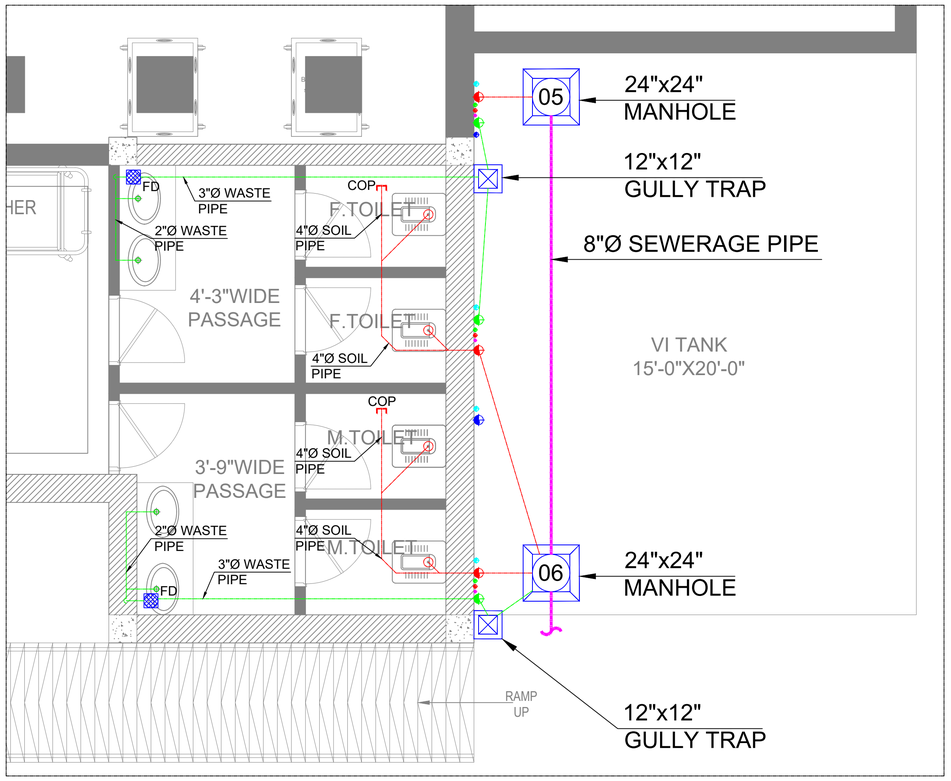
DR-06-01



LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F.	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL







Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY:	MUHAMMAD AYAN
CHECKED BY:	HUMAIR AHMED
PRINCIPAL ENGR:	ZUBAIR AHMED
SCALE:	@ A3 3/16"=1'-0"
DATE:	29-SEP-2025
JOB NO:	ZAE-0825/12

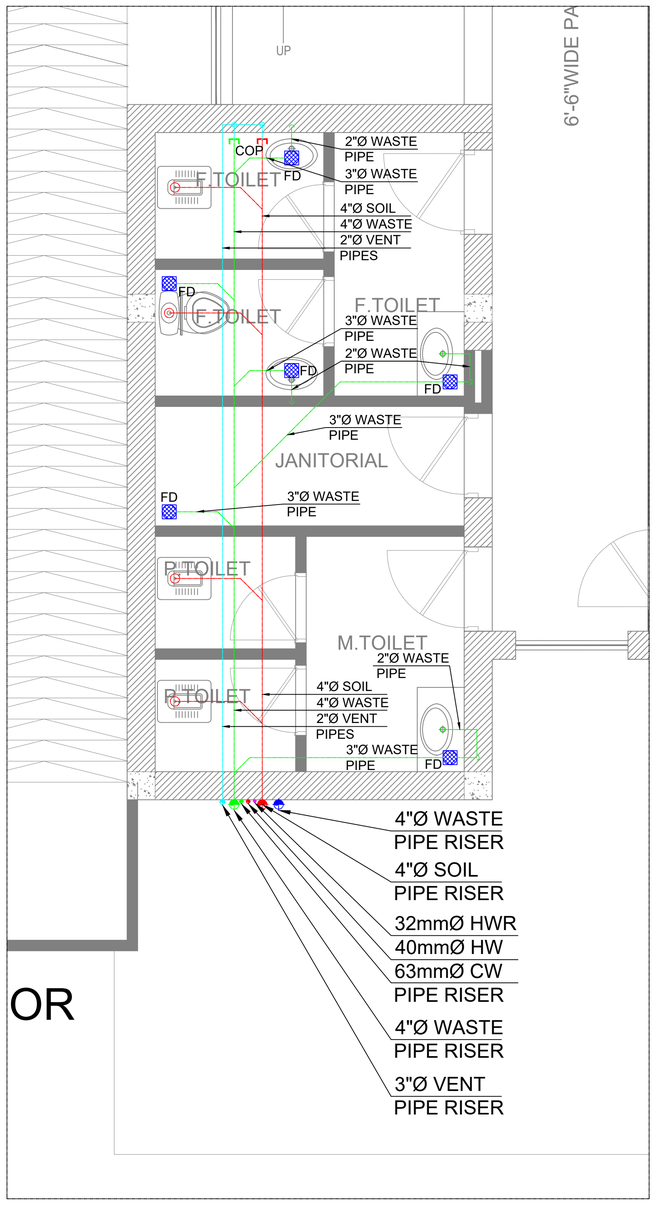
TITLE

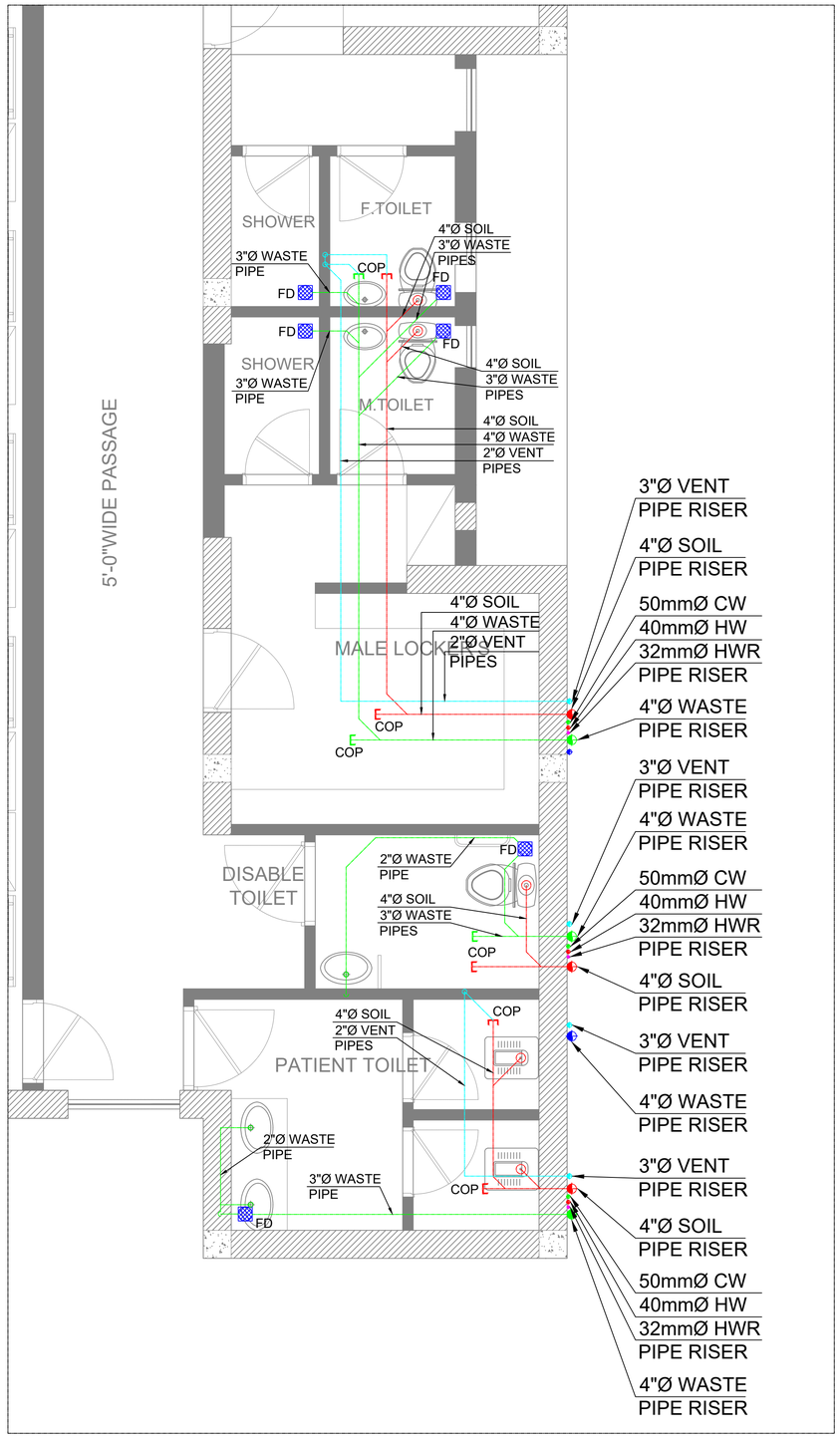
DRAINAGE LAYOUT FOR GROUND FLOOR ENLARGE PART PLANS (PLUMBING SYSTEM)

DRAWING NO

DR-07-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL





Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

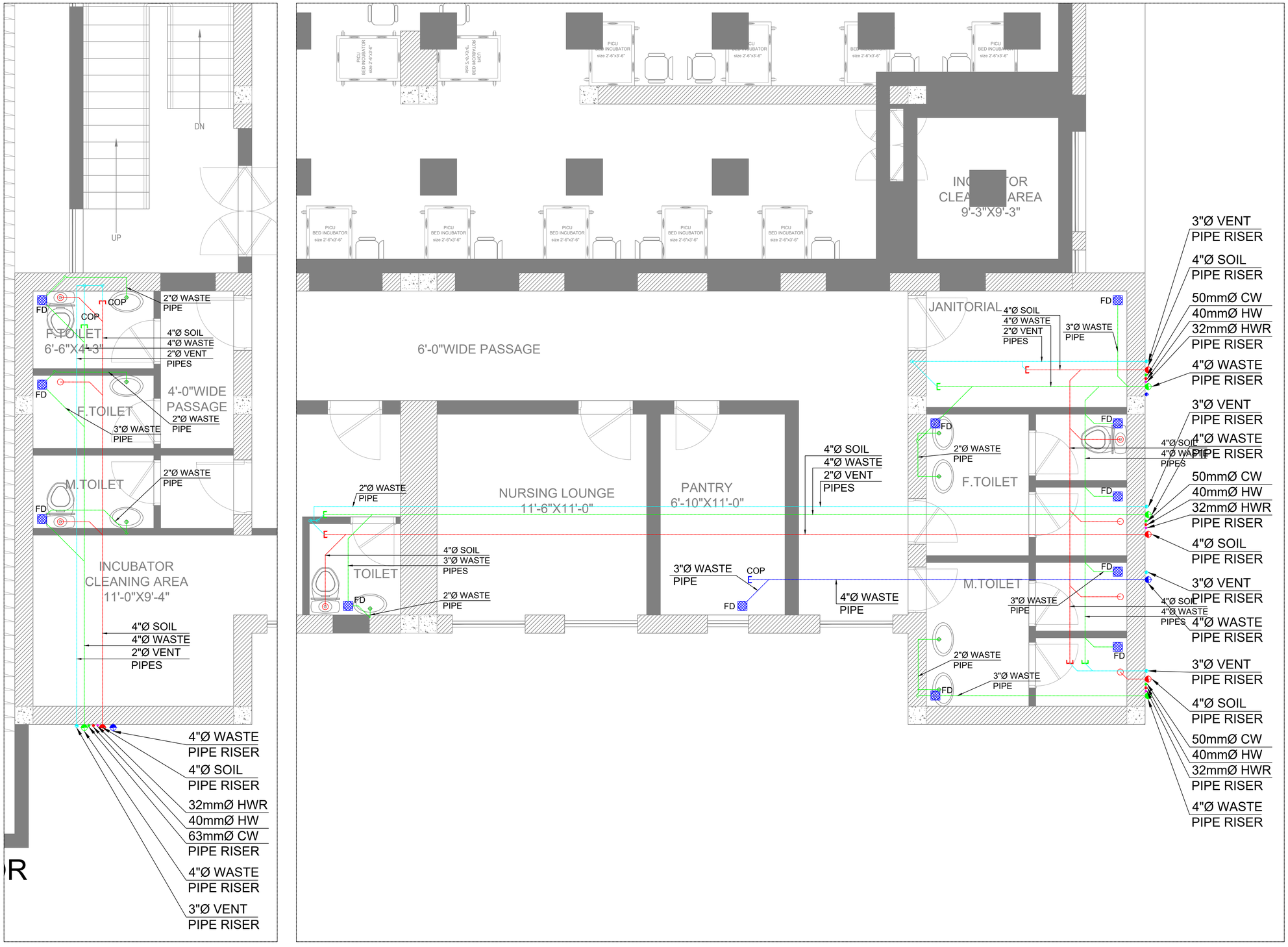
SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN
SCALE: @ A3 3/16"=1'-0"
CHECKED BY: HUMAIR AHMED
DATE: 29-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE
DRAINAGE LAYOUT FOR FIRST FLOOR ENLARGE PART PLANS (PLUMBING SYSTEM)

DRAWING NO
DR-08-01



LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN
CHECKED BY: HUMAIR AHMED
PRINCIPAL ENGR: ZUBAIR AHMED
SCALE: @ A3 3/16"=1'-0"
DATE: 29-SEP-2025
JOB NO: ZAE-0825/12

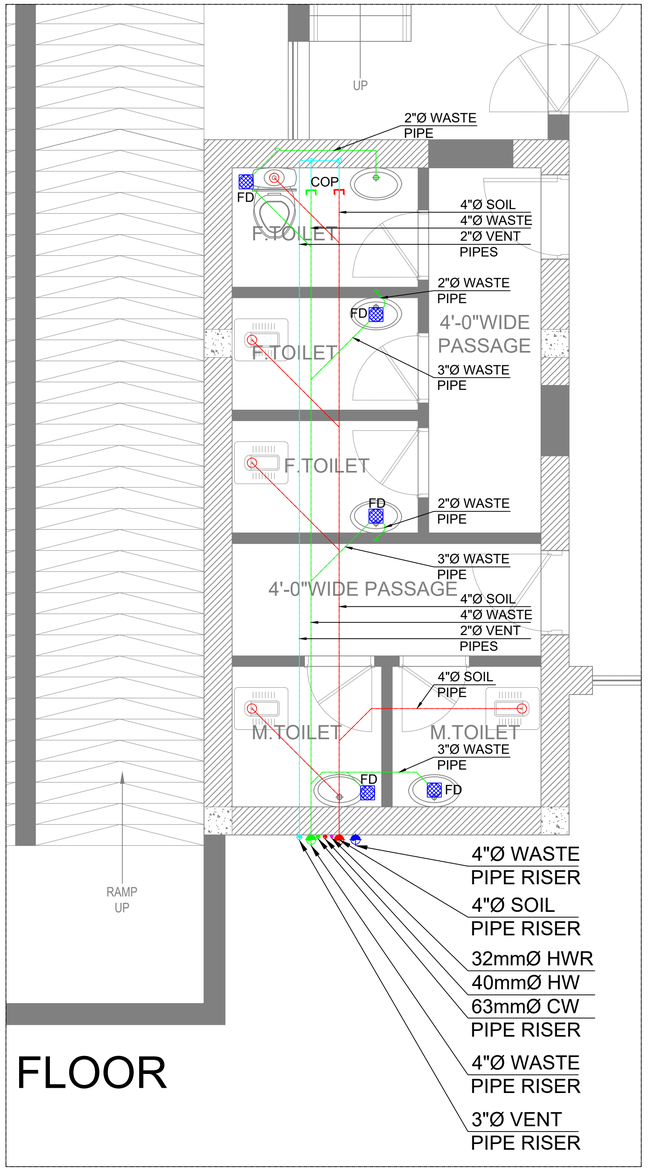
TITLE

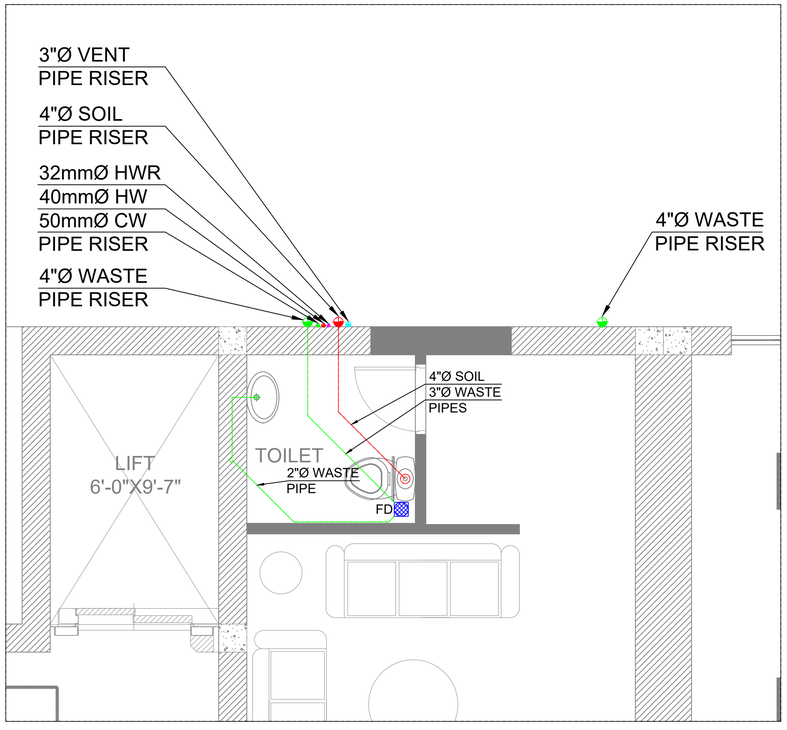
DRAINAGE LAYOUT FOR SECOND FLOOR ENLARGE PART PLANS (PLUMBING SYSTEM)

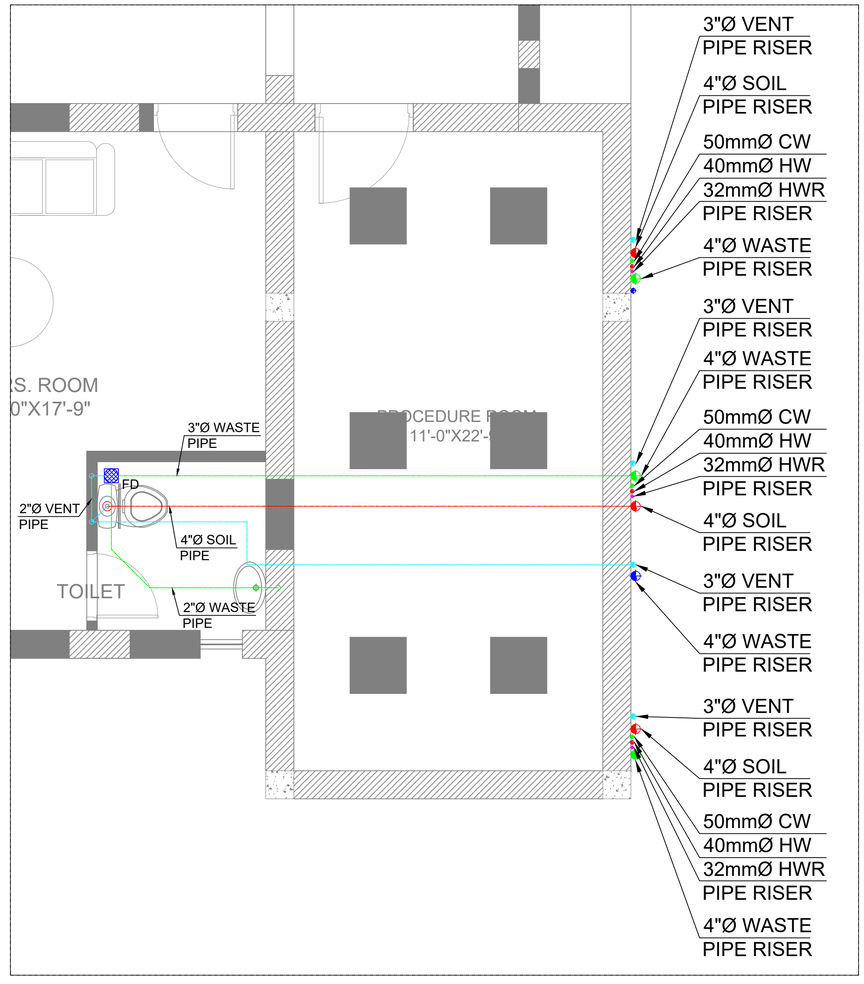
DRAWING NO

DR-09-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL







Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

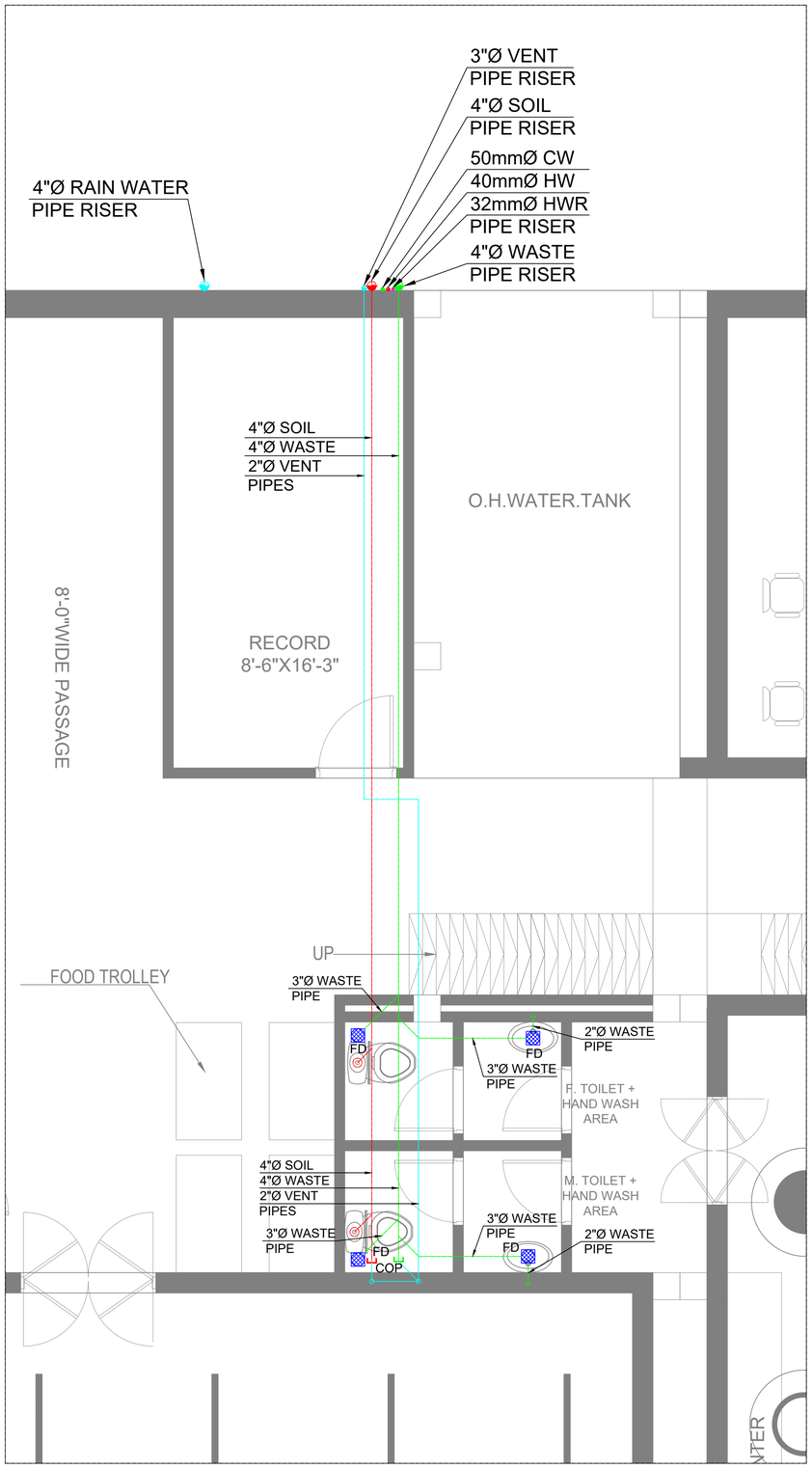
DRAWN BY:	MUHAMMAD AYAN
CHECKED BY:	HUMAIR AHMED
PRINCIPAL ENGR:	ZUBAIR AHMED
SCALE:	@ A3 3/16"=1'-0"
DATE:	29-SEP-2025
JOB NO:	ZAE-0825/12

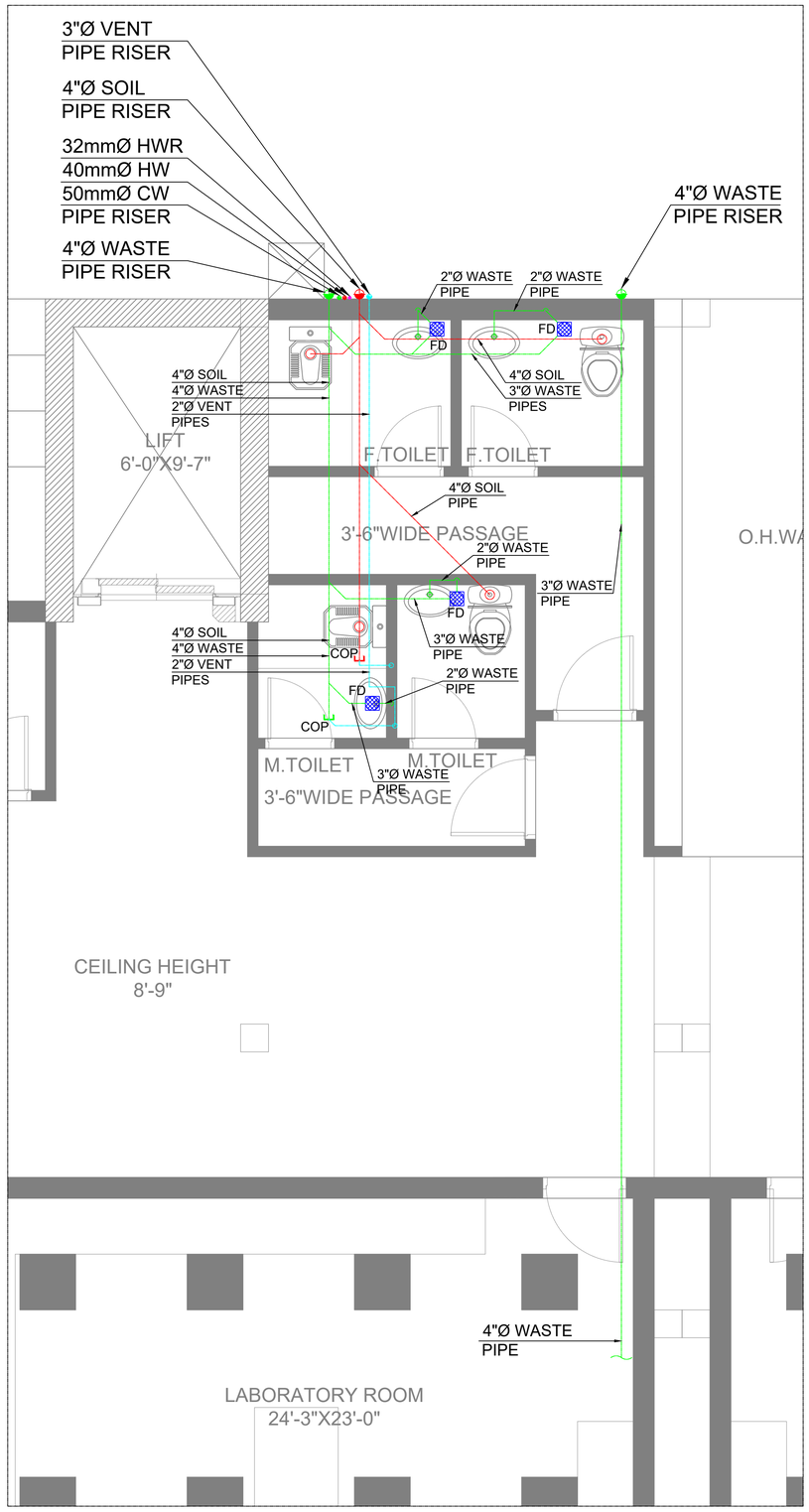
TITLE

DRAINAGE LAYOUT FOR THIRD FLOOR ENLARGE PART PLANS (PLUMBING SYSTEM)

DRAWING NO

DR-10-01





LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY:	MUHAMMAD AYAN
CHECKED BY:	HUMAIR AHMED
PRINCIPAL ENGR:	ZUBAIR AHMED
SCALE:	@ A3 3/16"=1'-0"
DATE:	29-SEP-2025
JOB NO:	ZAE-0825/12

TITLE

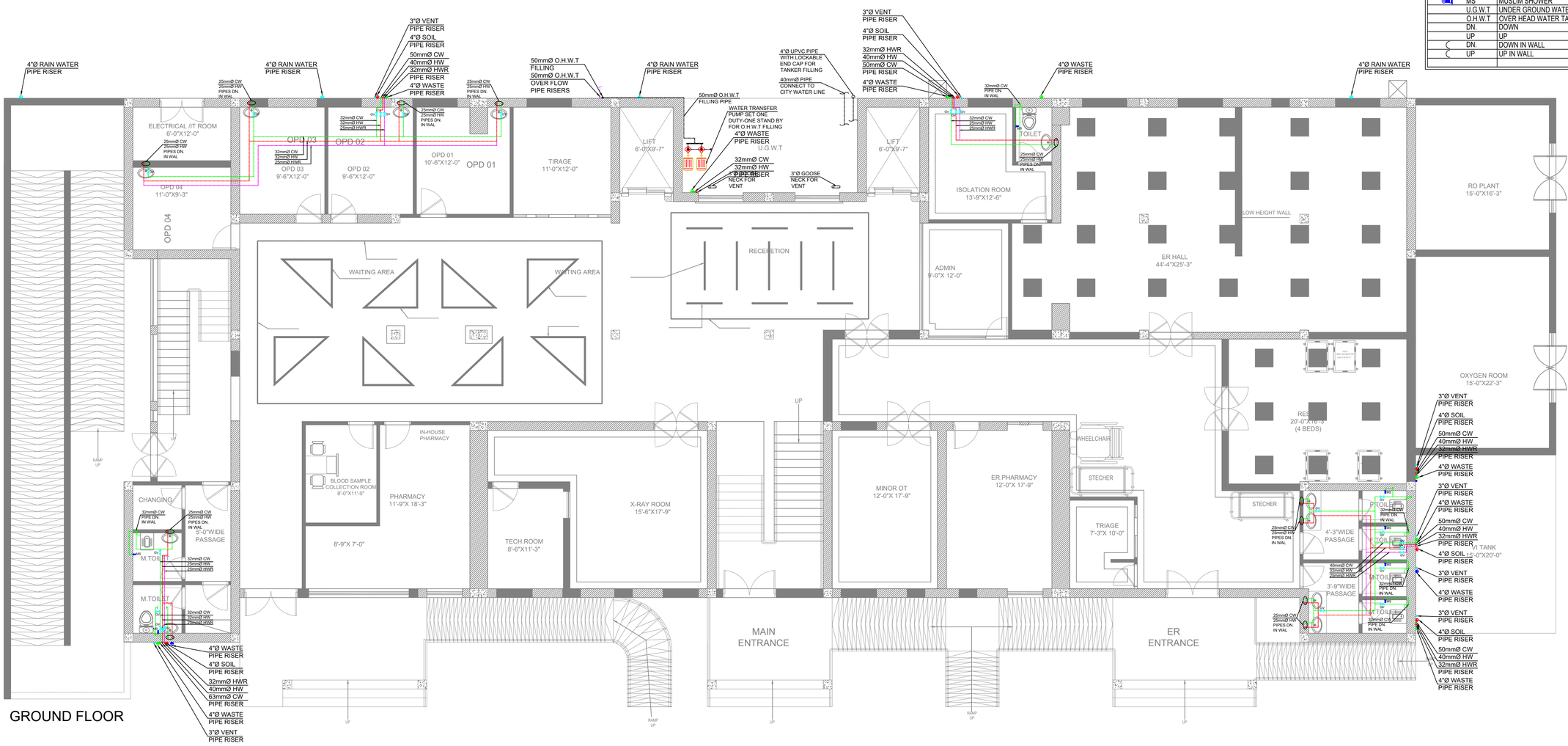
DRAINAGE LAYOUT FOR ROOF TOP ENLARGE PART PLANS (PLUMBING SYSTEM)

DRAWING NO

DR-11-01

LEGEND

ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F.	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL



Project						
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.	SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY				TITLE	DRAWING NO
			DRAWN BY: MUHAMMAD AYAN	SCALE: @ A3 AS SHOWN	**WATER SUPPLY LAYOUT FOR GROUND FLOOR (PLUMBING SYSTEM)**	WS-01-01
			CHECKED BY: HUMAIR AHMED	DATE: 29-SEP-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

LEGEND

ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

FIRST FLOOR

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN

SCALE: @ A3 3/32"=1'-0"

CHECKED BY: HUMAIR AHMED

DATE: 29-SEP-2025

PRINCIPAL ENGR: ZUBAIR AHMED

JOB NO: ZAE-0825/12

TITLE

WATER SUPPLY LAYOUT FOR FIRST FLOOR (PLUMBING SYSTEM)

DRAWING NO

WS-02-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

4"Ø RAIN WATER PIPE RISER
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR
PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ O.H.W.T FILLING
50mmØ O.H.W.T OVER FLOW PIPE RISERS
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
50mmØ CW
PIPE RISER
4"Ø WASTE PIPE RISER
4"Ø WASTE PIPE RISER
4"Ø RAIN WATER PIPE RISER

RAMP UP

ELECTRICAL /IT ROOM
11'-0"X7'-6"

NICU WARD
33'-0"X16'-6"
10 BED

LIFT
6'-0"X9'-7"

4"Ø WASTE PIPE RISER
32mmØ CW
32mmØ HW
PIPE RISER

LIFT
6'-0"X9'-7"

RECEPTION

ISOLATION ROOM
13'-9"X10'-0"

NICU WARD
50'-9"X35'-3"
28 BED

INCUBATOR CLEANING AREA
9'-3"X9'-3"

8'-0"WIDE PASSAGE

NICU WARD
43'-9"X28'-0"
21 BED

ISOLATION ROOM
12'-6"X8'-6"

6'-0"WIDE PASSAGE

JANITORIAL

DOCTOR'S LOUNGE
24'-8"X11'-0"

NURSING LOUNGE
11'-6"X11'-0"

PANTRY
6'-10"X11'-0"

TOILET

M.TOILET
6'-6"X4'-2"

F.TOILET

4'-0"WIDE PASSAGE

INCUBATOR CLEANING AREA
11'-0"X9'-4"

GATE VALVES

32mmØ CW PIPE DN. IN WAL.
25mmØ CW
25mmØ HW PIPES DN. IN WAL
40mmØ CW
32mmØ HW
25mmØ HWR
63mmØ CW
PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
25mmØ HWR
PIPES
GV

SECOND FLOOR

Project						
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.			DRAWN BY: MUHAMMAD AYAN	SCALE: @ A3 3/32"=1'-0"	TITLE: **WATER SUPPLY LAYOUT FOR SECOND FLOOR (PLUMBING SYSTEM)**	DRAWING NO: WS-03-01
SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY			CHECKED BY: HUMAIR AHMED	DATE: 29-SEP-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

4"Ø RAIN WATER PIPE RISER
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR
PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ O.H.W.T FILLING
50mmØ O.H.W.T OVER FLOW PIPE RISERS
4"Ø RAIN WATER PIPE RISER
4"Ø WASTE PIPE RISER
32mmØ CW
32mmØ HW
PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
50mmØ CW PIPE RISER
4"Ø WASTE PIPE RISER
4"Ø WASTE PIPE RISER
GARBAGE CHUTE
4"Ø RAIN WATER PIPE RISER

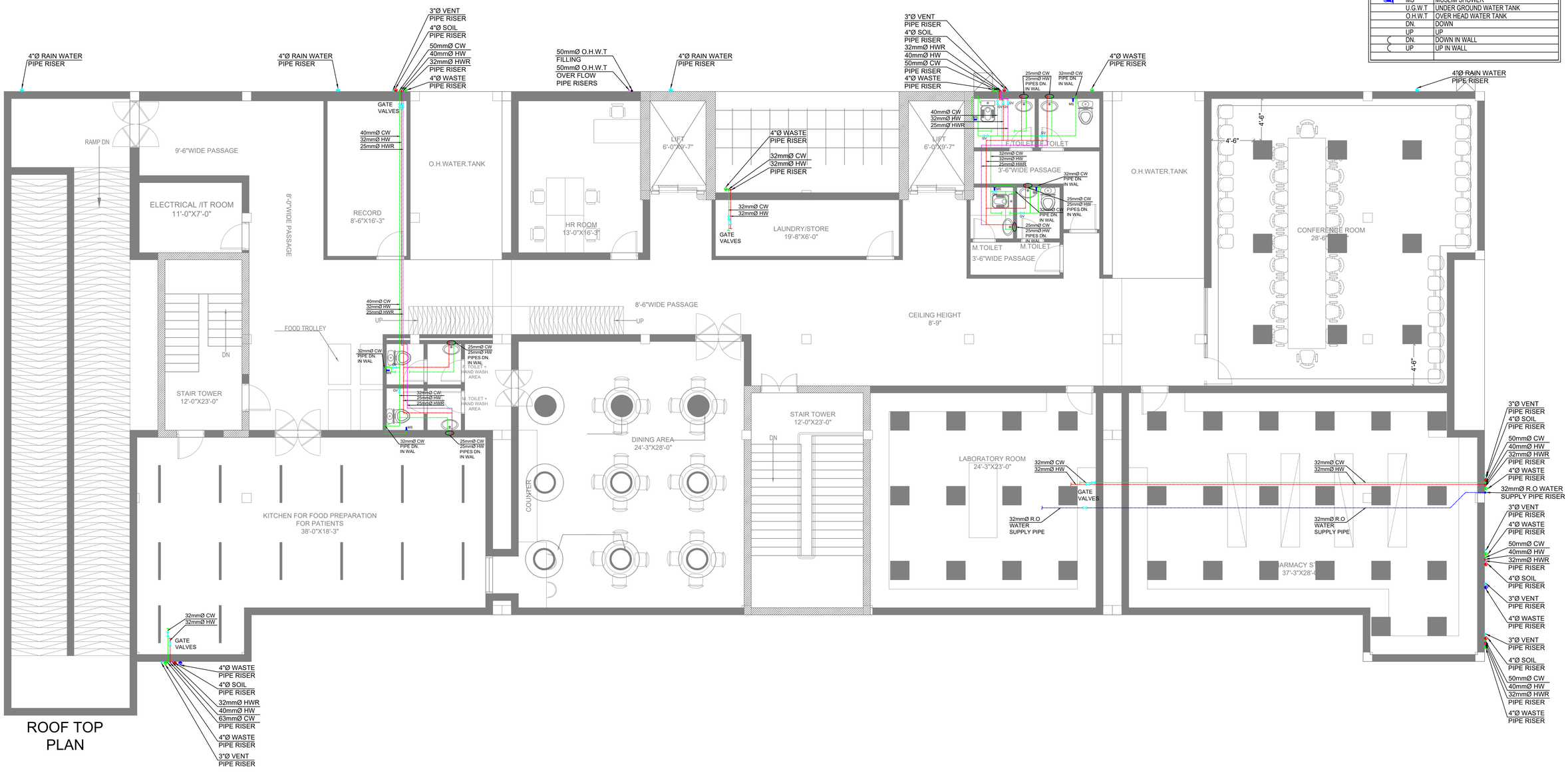
RAMP UP
8'-0"WIDE PASSAGE
ELECTRICAL /IT ROOM 11'-0"X7'-0"
8'-0"WIDE PASSAGE
8'-0"WIDE PASSAGE
IT ROOM 17'-0"X13'-6"
DIRECTOR ROOM 17'-8"X10'-6"
PHARMACY 24'-0"X10'-6"
LIFT 6'-0"X9'-7"
RECEPTION
LIFT 6'-0"X9'-7"
TOILET
DR. ROOM 13'-10"X18'-6"
5'-0" WIDE DIRTY CORRIDOR
CSSD 8'-0"X25'-0"
OT 21'-3"X19'-0"
CEILING HEIGHT 8'-9"
9'-3"WIDE PASSAGE
9'-3"WIDE PASSAGE
9'-3"WIDE PASSAGE
9'-3"WIDE PASSAGE
SPOUP 8'-0"
DN
UP
32mmØ CW PIPE DN. IN WAL
25mmØ CW 25mmØ HW PIPES DN. IN WAL
F.TOILET
4'-0"WIDE PASSAGE
F.TOILET
F.TOILET
4'-0"WIDE PASSAGE
M.TOILET
M.TOILET
5'-6"WIDE PASSAGE
SURGICAL ROOM (8 BEDS) 46'-3"X17'-9"
RECOVERY ROOM (5 BEDS) 24'-8"X17'-9"
PATIENT HOLDING AREA 10'-0"X17'-9"
NURS. ROOM 15'-0"X17'-9"
TOILET
PROCEDURE ROOM 11'-0"X22'-
RAMP UP
THIRD FLOOR
4"Ø WASTE PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
63mmØ CW PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER

Project						
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.			DRAWN BY: MUHAMMAD AYAN	SCALE: @ A3 3/32"=1'-0"	TITLE **WATER SUPPLY LAYOUT FOR THIRD FLOOR (PLUMBING SYSTEM)**	DRAWING NO WS-04-01
SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY			CHECKED BY: HUMAIR AHMED	DATE: 29-SEP-2025		
			PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12		

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

LEGEND

ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL



Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN
SCALE: @ A3 3/32"=1'-0"
CHECKED BY: HUMAIR AHMED
DATE: 29-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE

WATER SUPPLY LAYOUT FOR ROOF TOP (PLUMBING SYSTEM)

DRAWING NO

WS-05-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

4"Ø RAIN WATER PIPE RISER
4"Ø RAIN WATER PIPE RISER
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER
GATE VALVES
50mmØ O.H.W.T FILLING
50mmØ O.H.W.T OVER FLOW PIPE RISERS
4"Ø RAIN WATER PIPE RISER
4"Ø WASTE PIPE RISER
32mmØ CW
32mmØ HW
PIPE RISER
63mmØ COLD WATER SUPPLY
50mmØ HOT WATER SUPPLY
40mmØ HOT WATER RETURN PIPES
GATE VALVES
50mmØ O.H.W.T FILLING
50mmØ O.H.W.T OVER FLOW PIPES
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
50mmØ CW
PIPE RISER
4"Ø WASTE PIPE RISER
GATE VALVES
63mmØ COLD WATER SUPPLY
50mmØ HOT WATER SUPPLY
40mmØ HOT WATER RETURN PIPES
4"Ø WASTE PIPE RISER
6"Ø SLEEVE FOR FIRE FIGHTING SYSTEM
OVER HEAD WATER TANK
R.O. PLANT LOCATION CONFORM BY ARCHITECT
4"Ø RAIN WATER PIPE RISER
HOT WATER GEYSERS PER GEYSER 80 GALLONS (03 NOS)
HOT WATER RETURN PUMP
50mmØ O.H.W.T FILLING
50mmØ O.H.W.T OVER FLOW PIPES
63mmØ COLD WATER SUPPLY
50mmØ HOT WATER SUPPLY
40mmØ HOT WATER RETURN PIPES
32mmØ R.O WATER SUPPLY PIPE
63mmØ COLD WATER SUPPLY
50mmØ HOT WATER SUPPLY
40mmØ HOT WATER RETURN PIPES
GATE VALVES
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER
32mmØ R.O WATER SUPPLY PIPE RISER
GATE VALVES
3"Ø VENT PIPE RISER
4"Ø WASTE PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø SOIL PIPE RISER
GATE VALVES
3"Ø VENT PIPE RISER
4"Ø WASTE PIPE RISER
GATE VALVES
3"Ø VENT PIPE RISER
4"Ø SOIL PIPE RISER
50mmØ CW
40mmØ HW
32mmØ HWR PIPE RISER
4"Ø WASTE PIPE RISER
63mmØ COLD WATER SUPPLY
50mmØ HOT WATER SUPPLY
40mmØ HOT WATER RETURN PIPES
GATE VALVES
4"Ø WASTE PIPE RISER
4"Ø SOIL PIPE RISER
32mmØ HWR
40mmØ HW
63mmØ CW PIPE RISER
4"Ø WASTE PIPE RISER
3"Ø VENT PIPE RISER

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

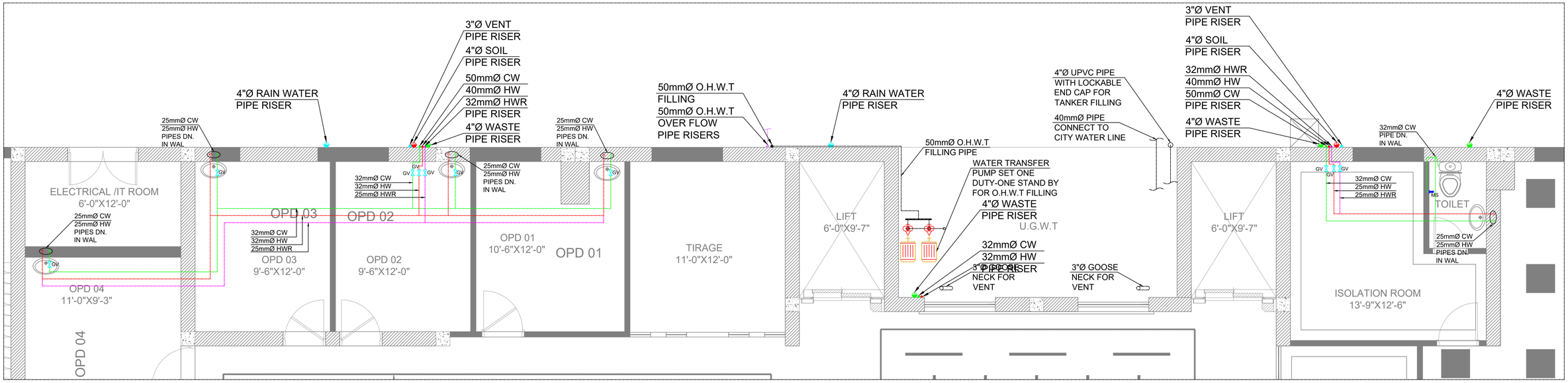
SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

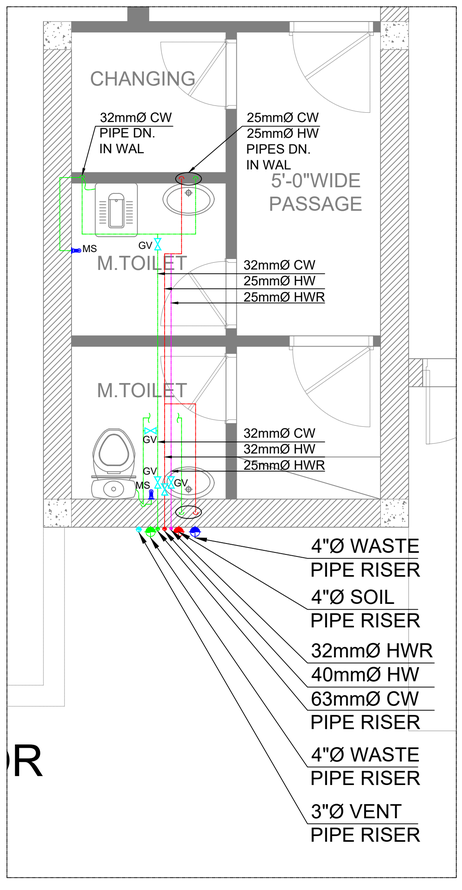
No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

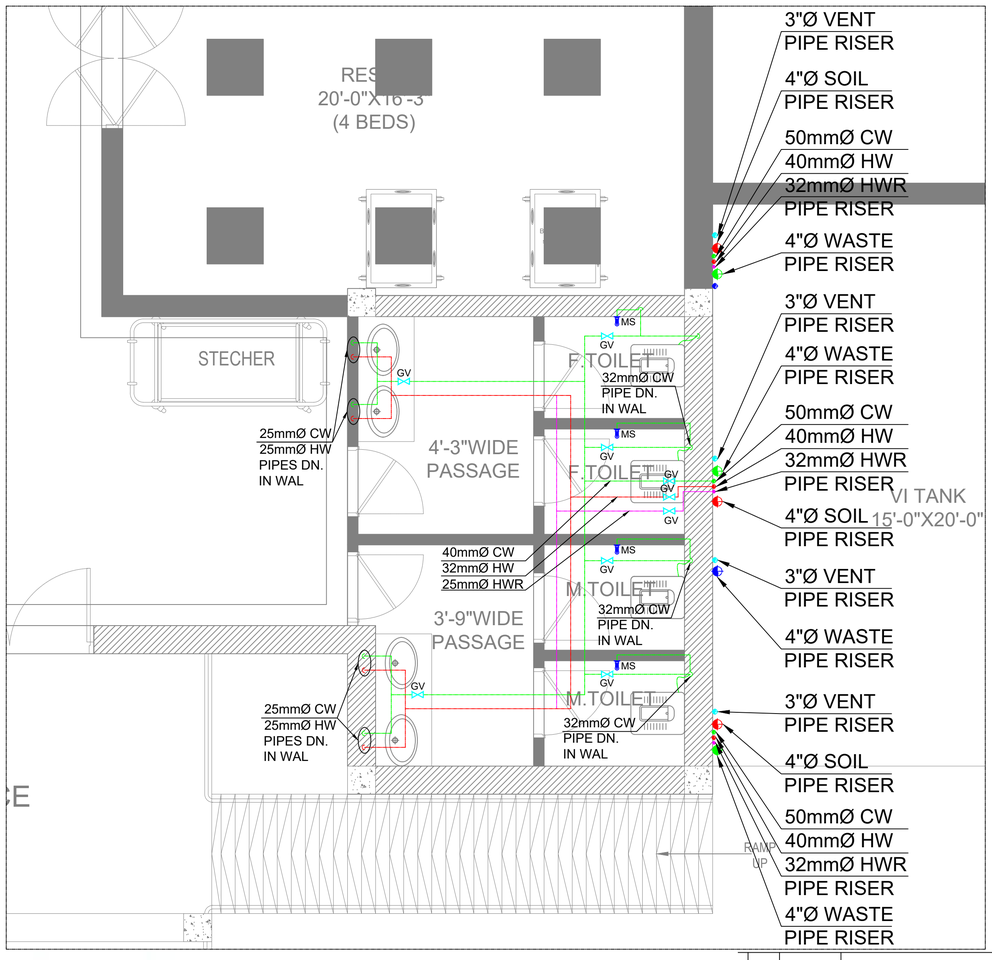
DRAWN BY: MUHAMMAD AYAN
CHECKED BY: HUMAIR AHMED
PRINCIPAL ENGR: ZUBAIR AHMED
SCALE: @ A3 3/32"=1'-0"
DATE: 29-SEP-2025
JOB NO: ZAE-0825/12

TITLE
WATER SUPPLY LAYOUT FOR ROOF PLAN O.H.W.T. (PLUMBING SYSTEM)

DRAWING NO
WS-06-01







LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

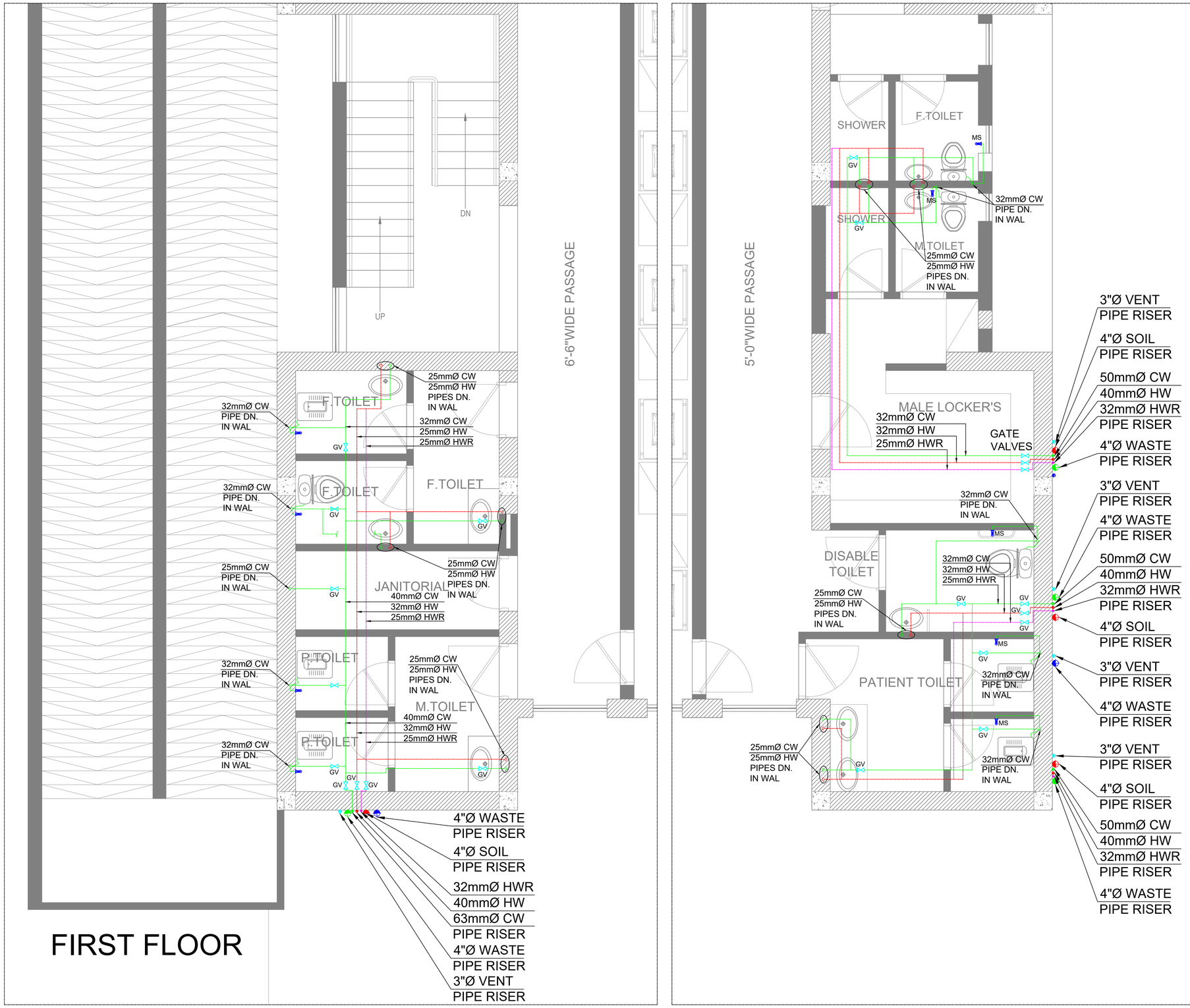
Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN	SCALE: @ A3 3/16"=1'-0"	TITLE: **WATER SUPPLY LAYOUT FOR GROUND FLOOR ENLARGE PART PLANS (PLUMBING SYSTEM)**
CHECKED BY: HUMAIR AHMED	DATE: 29-SEP-2025	
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	DRAWING NO: WS-07-01



LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

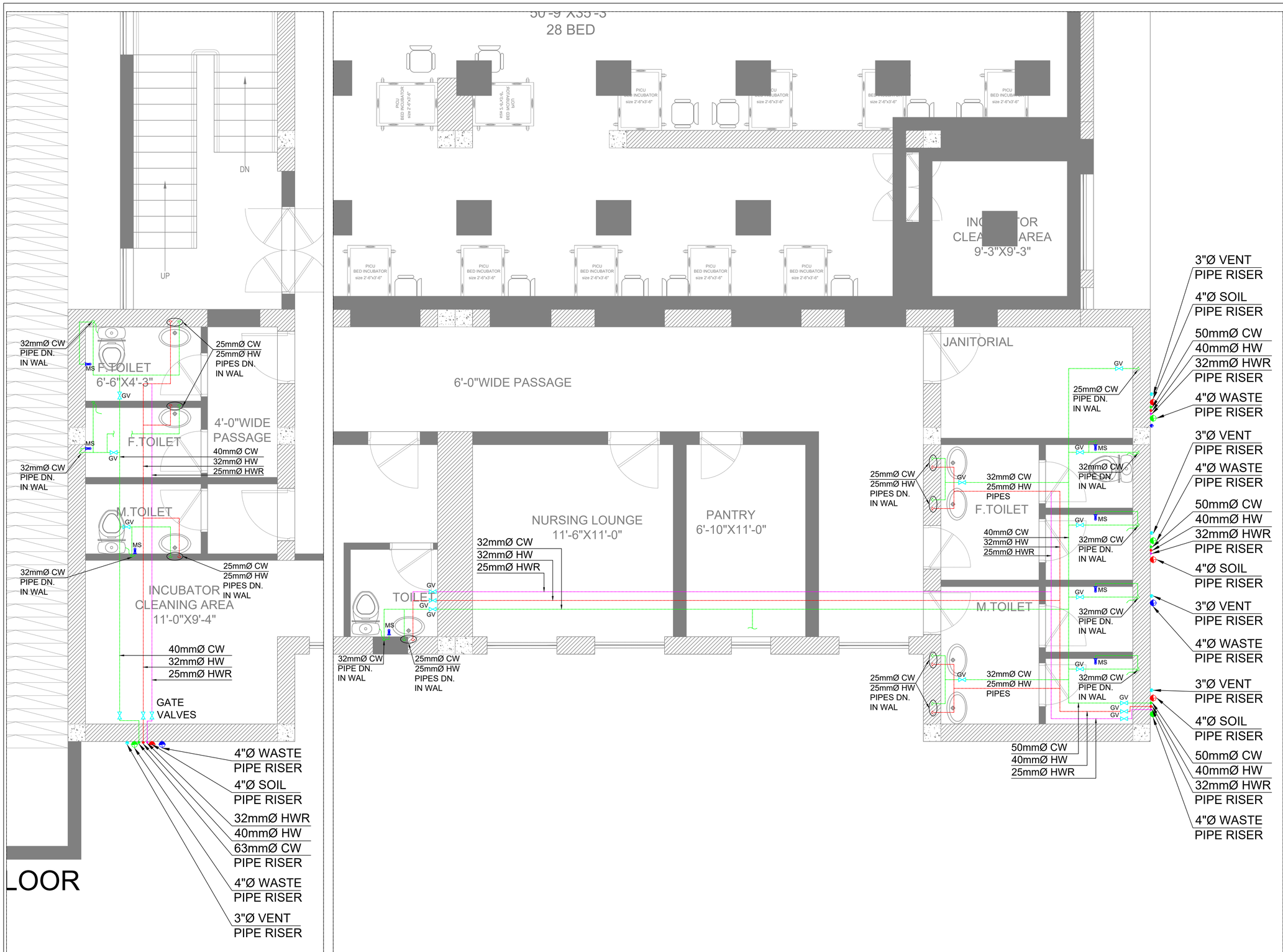
SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN
SCALE: @ A3 3/16"=1'-0"
CHECKED BY: HUMAIR AHMED
DATE: 29-SEP-2025
PRINCIPAL ENGR: ZUBAIR AHMED
JOB NO: ZAE-0825/12

TITLE
WATER SUPPLY LAYOUT FOR FIRST FLOOR ENLARGE PART PLANS (PLUMBING SYSTEM)

DRAWING NO
WS-08-01



LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F.	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

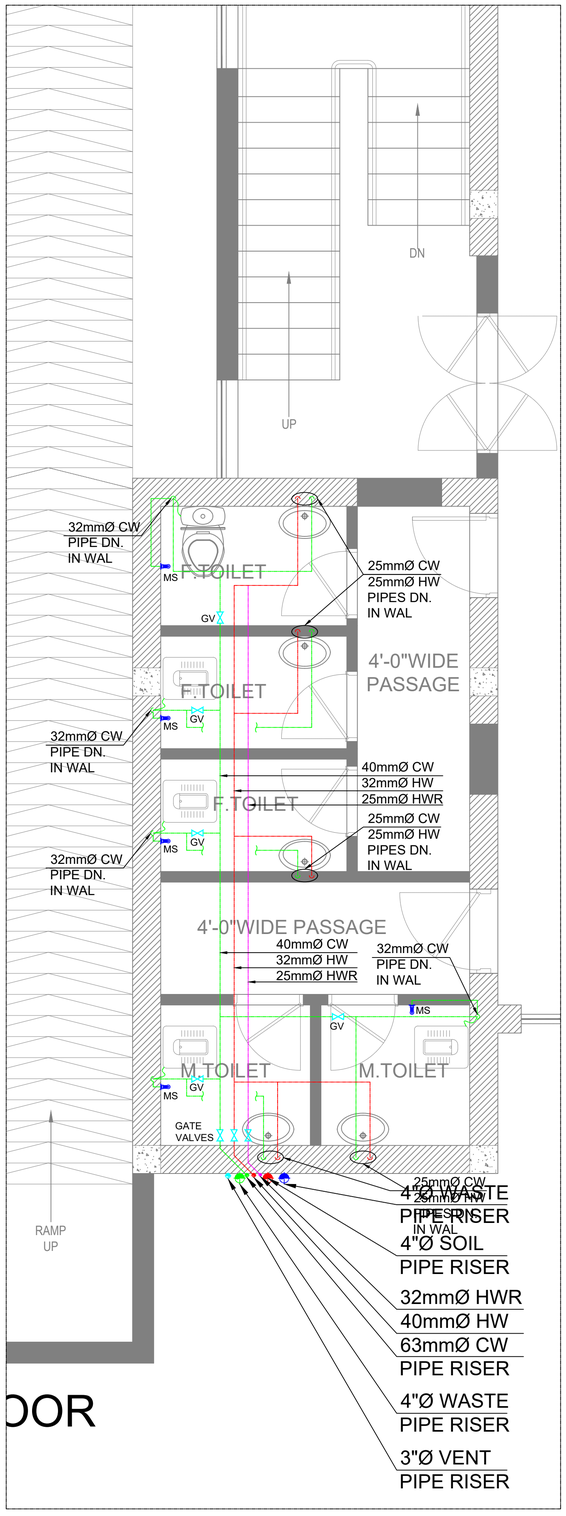
No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

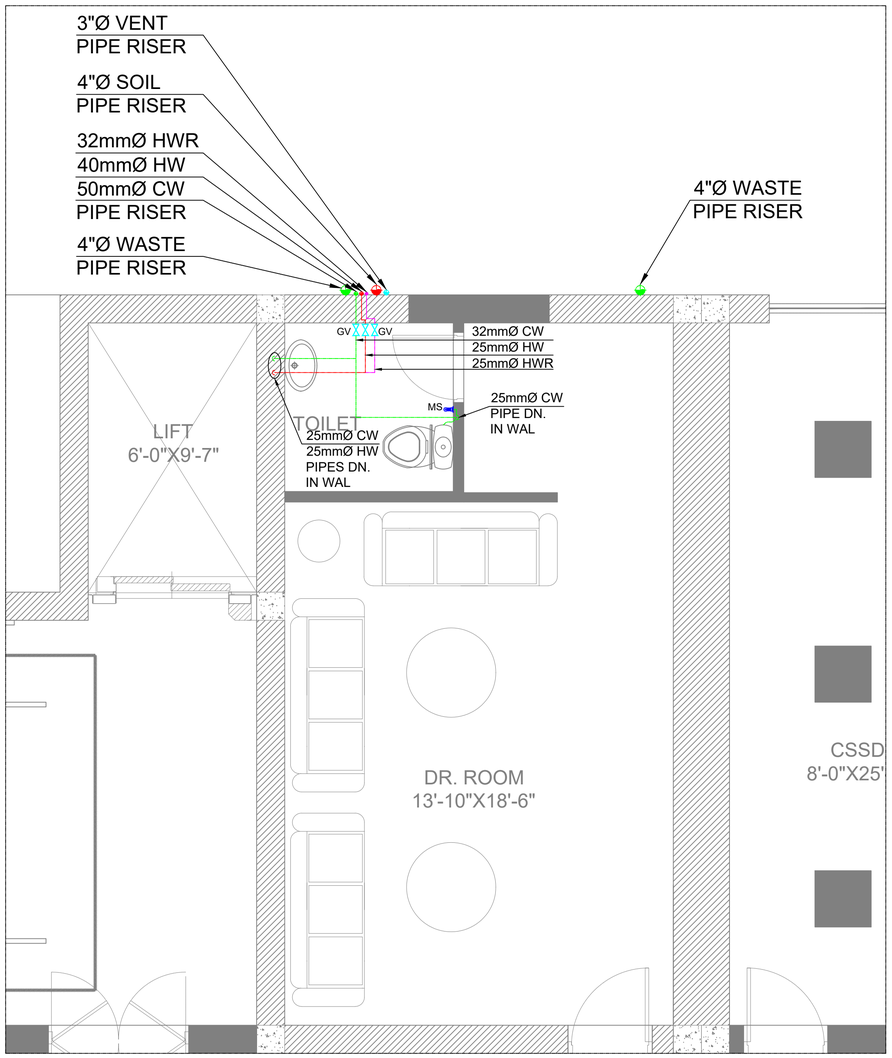
DRAWN BY: MUHAMMAD AYAN
CHECKED BY: HUMAIR AHMED
PRINCIPAL ENGR: ZUBAIR AHMED
SCALE: @ A3 3/16"=1'-0"
DATE: 29-SEP-2025
JOB NO: ZAE-0825/12

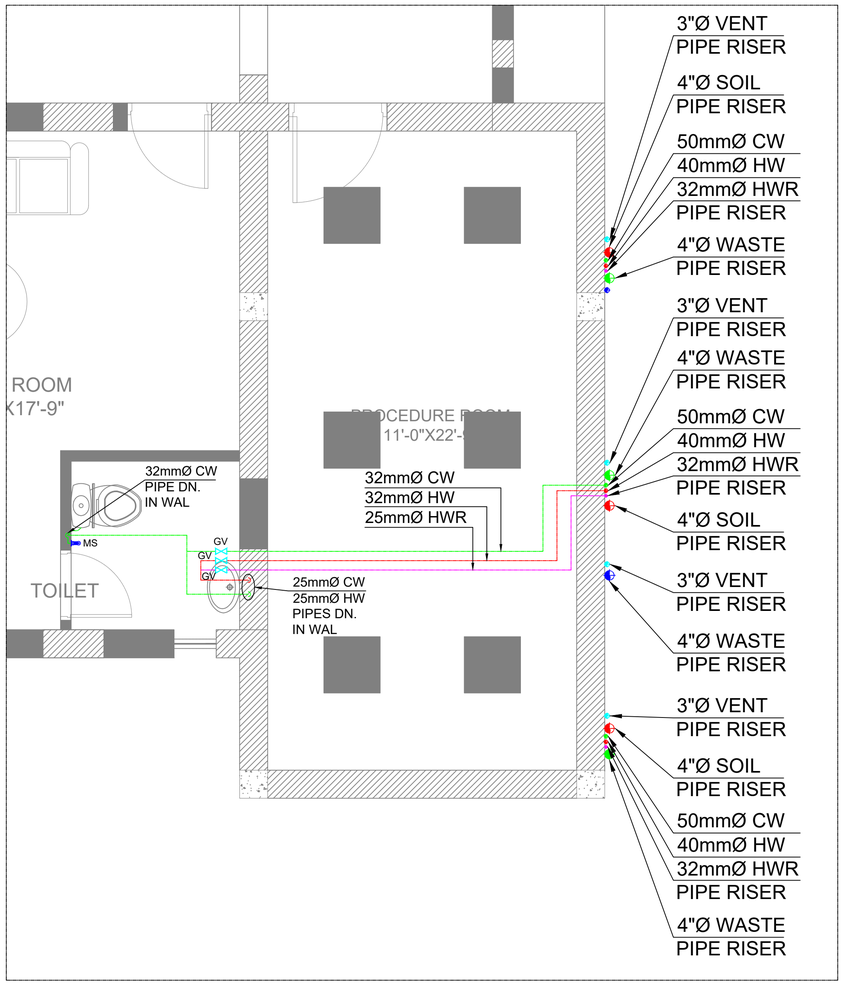
TITLE
WATER SUPPLY LAYOUT FOR SECOND FLOOR ENLARGE PART PLANS (PLUMBING SYSTEM)

DRAWING NO
WS-09-01

LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL







Project

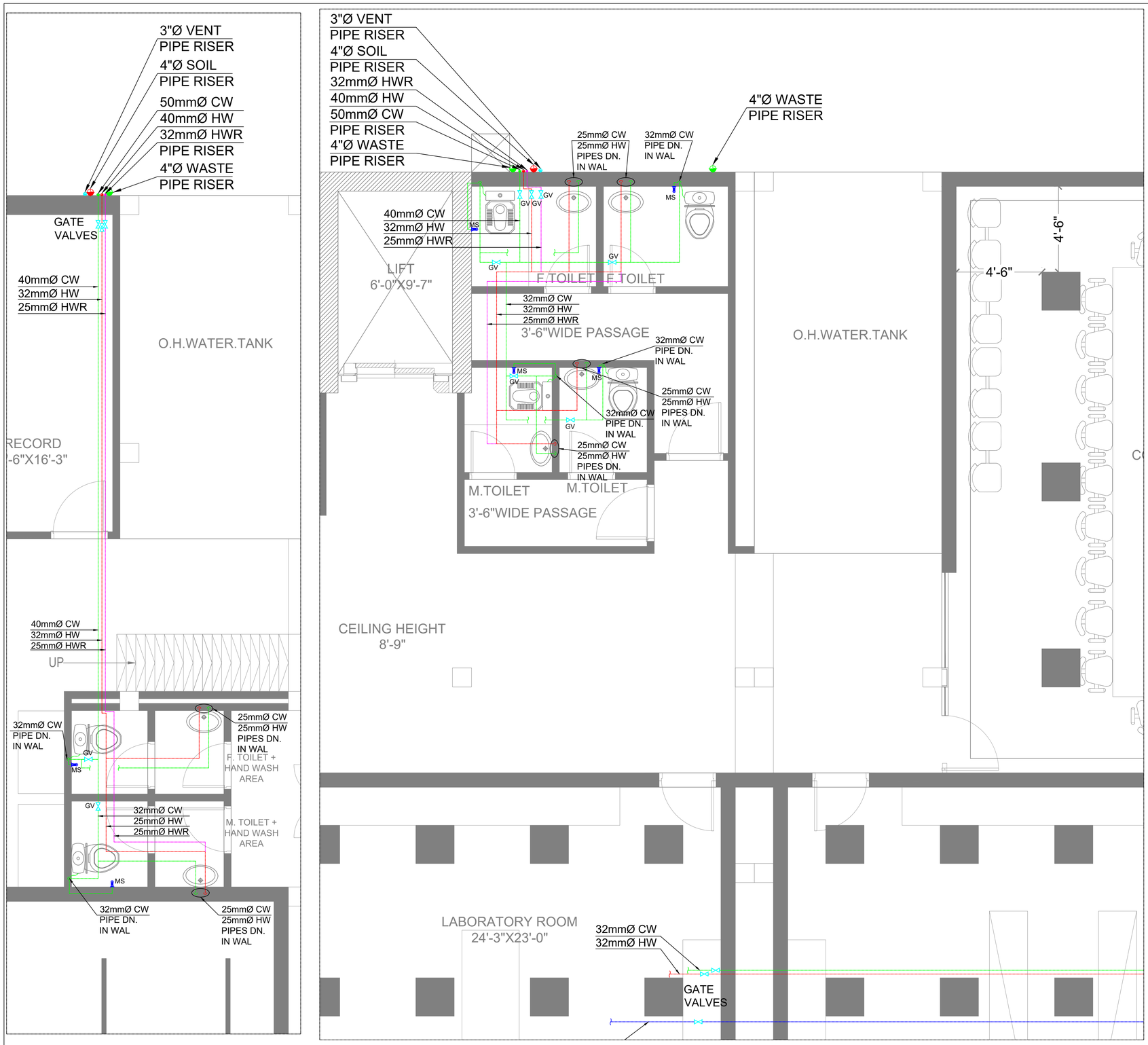
(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY: MUHAMMAD AYAN	SCALE: @ A3 3/16"=1'-0"	TITLE: **WATER SUPPLY LAYOUT FOR THIRD FLOOR ENLARGE PART PLANS (PLUMBING SYSTEM)**
CHECKED BY: HUMAIR AHMED	DATE: 29-SEP-2025	
PRINCIPAL ENGR: ZUBAIR AHMED	JOB NO: ZAE-0825/12	

DRAWING NO: WS-10-01



LEGEND	
ABBREVIATIONS	DESCRIPTION
CW	COLD WATER PIPE (PRESSURIZED)
HW	HOT WATER PIPE (PRESSURIZED)
HWR	HOT WATER RETURN PIPE
FILL	OVER HEAD WATER TANK FILLING PIPE
O.F	O.H.WATER TANK OVER FLOW & DRAIN PIPE
SP	SOIL PIPE
WP	WASTE PIPE
VP	VENT PIPE
MSP	MAIN SEWERAGE PIPE
RWP	RAIN WATER PIPE
FD	FLOOR DRAIN WITH P-TRAP
COP	CLEAN OUT PLUG
GV	GATE VALVE
MS	MUSLIM SHOWER
U.G.W.T	UNDER GROUND WATER TANK
O.H.W.T	OVER HEAD WATER TANK
DN.	DOWN
UP	UP
DN.	DOWN IN WALL
UP	UP IN WALL

Project

(SICHN) CIVIL HOSPITAL MIRPUR KHAS SINDH.

SINDH INSTITUTE OF CHILD HEALTH AND NEONATOLOGY

No.	Date	Revision
00	22/09/2025	*REVIEW FOR TENDER*
01	29/09/2025	*TENDER DRAWINGS*

DRAWN BY:	MUHAMMAD AYAN
CHECKED BY:	HUMAIR AHMED
PRINCIPAL ENGR:	ZUBAIR AHMED
SCALE:	@ A3 3/16"=1'-0"
DATE:	29-SEP-2025
JOB NO:	ZAE-0825/12

TITLE

WATER SUPPLY LAYOUT FOR ROOF TOP ENLARGE PART PLANS (PLUMBING SYSTEM)

DRAWING NO

WS-11-01

دفتر ایگزیکٹو ڈائریکٹر

سندھ انسٹیٹیوٹ آف چائلڈ ہیلتھ اینڈ نیونیٹولوجی (SICHN)، حکومت سندھ کراچی

Ref No.SICHN/GOS/Proc./Adv-NIT/III/25-26/09 Dated:24-07-2025

ٹینڈرز طلبی نوٹس

سندھ انسٹیٹیوٹ آف چائلڈ ہیلتھ اینڈ نیونیٹولوجی (SICHN) سندھ پبلک پروکیورمنٹ رولز 2010ء (ترمیم شدہ 2019ء) کی متعلقہ شق کے تحت برائے مالیاتی سال 26-2025 متعدد اداروں آئٹمز کی فراہمی کیلئے اہل بڈنگ دہندگان کیلئے ای پاک ایکوزیشن اینڈ ڈسپوزل سسٹم (EPADS) کے ذریعے آن لائن بڈز طلب کرتا ہے۔

دلچسپی کے حامل اہل بڈنگ دہندگان -/5000 روپے ناقابل واپسی ٹینڈر فیس سندھ انسٹی ٹیوٹ آف چائلڈ ہیلتھ اینڈ نیونیٹولوجی (SICHN) کے حق میں سندھ بینک اکاؤنٹ میں کیش ڈپازٹ کے ذریعے جمع کرانے کے ساتھ تحریری درخواست پیش کرنے کیلئے مدعو کیے جاتے ہیں اور ادا شدہ ڈپازٹ سلپ اشاعت کی تاریخ سے 12-08-2025 کو صبح 10:00 بجے تک ماسوائے اتوار اور تعطیلات صبح 9:00 بجے سے سہ پہر 3:00 بجے کے درمیان فرسٹ فلور، پلاٹ نمبر 354 اور 356JM، نزد ہیلتھ سیکٹر ریٹ چورنگی، جمشید کوارٹرز کراچی میں جمع کرائی جائے گی۔ مفصل شرائط و ضوابط پر مشتمل بڈنگ دستاویز کا ایک مکمل سیٹ https://portalsindh.eprocure.gov.pk/#/ پر مفت ڈاؤن لوڈ کیا جا سکتا ہے۔

بڈنگ دستاویزات میں ہدایات کے مطابق مکمل کردہ بڈنگ ٹینڈرز EPADS پر جمع کرائیں اور تمام بڈنگ دستاویزات کے ساتھ ذیل میں درج کردہ کے مطابق کل بڈنگ فیس درج کردہ مالیت کی بڈ سیکیورٹی بشکل پے آرڈر یا کال ڈپازٹ یا بینک گارنٹی بنام سندھ انسٹیٹیوٹ آف چائلڈ ہیلتھ اینڈ نیونیٹولوجی (SICHN) ای بڈ جمع کرانے کی ڈیڈ لائن سے قبل ادا کی جائے بصورتِ دیگر 12-08-2025 کو بوقت صبح 11:00 بجے فرسٹ فلور پلاٹ نمبر 354 اور 356JM نزد ہیلتھ سیکٹر ریٹ چورنگی، جمشید کوارٹرز کراچی میں کھولی جائیں گی۔

پروکیورمنٹ کمیٹی SICHN کو SPPRA رولز 2010ء (ترمیم شدہ 2019ء) کی متعلقہ شق کے تحت مالی/انتظامی/تکنیکی قبول/مسترد کرنے کا حق حاصل ہے۔

نمبر شمار	ٹینڈر کا مکمل	زرِ ضمانت	ٹینڈر فیس	ٹینڈر دستاویز کی فروخت	ٹینڈر فروخت کی آخری تاریخ اور وقت	ٹینڈر جمع کرانے کی تاریخ اور وقت	ٹینڈر کھلنے کی تاریخ اور وقت	ٹینڈر کھلنے کا مقام اور پتا
1	SICHN سائنس کیلئے ڈرگز اور ادویات کا حصول	2%	5000/- 5000/-	NIT کی اشاعت کے یوم سے	12-08-2025 کو یا قبل صبح 10:00 بجے تک	12-08-2025 کو یا قبل صبح 10:30 بجے تک	12-08-2025 بوقت صبح 11:00 بجے	سندھ انسٹیٹیوٹ آف چائلڈ ہیلتھ اینڈ نیونیٹولوجی (SICHN) فرسٹ فلور، پلاٹ نمبر 354 اور 356JM، نزد ہیلتھ سیکٹر ریٹ چورنگی جمشید کوارٹرز کراچی
2	SICHN سائنس کیلئے کیمیکلز اور دیگر ادویات کا حصول	2%						
3	SICHN سائنس کیلئے سرجیکل اور ڈسپوزیبل آئٹمز کا حصول	2%	5000/- 5000/-					
4	SICHN سائنس کیلئے جنرل اور ڈینٹل آئٹمز کا حصول	2%	5000/-					
5	SICHN سائنس کے لئے لیبارٹری کنزیومبلز اور ہیموبیکٹیریل کلچر میڈیا کا حصول	2%						

N.B

● حکومت کی جانب سے عام تعطیل کے اعلان کی صورت میں ٹینڈر آئندہ یوم کار پر جمع کیا اور کھولا جائے گا۔ ● تمام NIT میں سرکاری تقاضے شامل پروفیشنل ٹیکس، SRB، GST اور دیگر ان جہاں بھی قابل اطلاق ہیں شامل کیے جائیں۔ ● کسی دشواری کی صورت میں امکانی بڈنگ دہندگان یا ہم اوقات کار کے دوران EPADS ہیلپ لائن 051-111-137-237 پر رابطہ کر سکتے ہیں۔

دستخط: **ایگزیکٹو ڈائریکٹر**

(SICHN) حکومت سندھ فون نمبر 3-2-9933310 + 9221

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GOVERNMENT OF SINDH
SINDH INSTITUTE OF CHILD HEALTH & NEONATOLOGY (SICHN)

No-SICHN/GoS/Constitution of PC/2025-26/116 Date: 28-10-2025

NOTIFICATION

In partial modification of this office Notification **No-SICHN/Re-Constitution of Committee/2023-24/15** dated: **10.11.2023** the procurement committee has been modified for the procurement of goods, works and services with the approval of Executive Director – SICHN. The composition of Procurement committee is as under:

1. Dr. Shahid Raza, Chief Operating Officer, SICHN, Karachi **Chairman**
2. Mr. Jalaluddin Akber, Prof at Baqai Medical University/Member of BoD **Member**
3. Mr. Zulfiqar Ali Dars, Deputy Secretary, Health Department, GoS **Member**

ToRs of the Committee are as under:

The TORS / Functions / Responsibilities of the procurement Committee in accordance with Rule-8 Of SPP Rules 2010 (Amended 2019) Shall be as under:

I. Preparing bidding documents.
II. Making recommendations for the award contract to the competent Authority.
III. Perform any other function ancillary and incidental to above.

(Prof. Syed Jamal Raza)
Executive Director-SICHN, Karachi

Copy forwarded for information to:

1. The P.S to the Chairperson, Board of Directors, SICHN, Karachi
2. The P.S to the Secretary, Health Department, Government of Sindh
3. All Concerned Member
4. Office File.

Prof. SYED JAMAL RAZA
Executive Director
Sindh Institute of Child Health & Neonatology Karachi.

(Prof. Syed Jamal Raza)
Executive Director-SICHN, Karachi