



COMPANY PROFILE & PRE-QUALIFICATION DOCUMENT



T A B L E O F C



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INTRODUCTION

SAHARA MEP ENGINEERING LTD. is a Mechanical, Electrical and Plumbing contracting company in Ghana specializing in design, build, construct, supply, install, service, upgrade, maintenance of Electro-Mechanical Systems & Networks, Utilities and Equipment. Our scope covers Engineering, Documentation, Submittals Approval, Shop drawings, Coordinating Drawings, Commissioning, Start-Up, As-Built ACC. To Contract Programs, Project Time Schedules – Complying Consultant Specifications, International Standards & Codes, Safety & Quality Plans.

Our Business activity extends to cover all areas of electro-mechanical works including but not limited to:

- Substation & Plants Works
- Electrical Networking & Works
- Low Current Networks
- Tele-Communication & Security Systems
- Piping & Plumbing Works
- HVAC Works
- Ducting & Thermal Insulation Works
- Fire Fighting Works
- Industrial Installations Works

SAHARA MEP ENGINEERING LTD. works with the highest efficiency and in accordance with the latest technologies in conformity with international standards of quality, security and safety. we utilize trained and experienced staff for the implementation and delivery of projects with commitment to contract terms, conditions, and preservation to the environment.

SAHARA MEP ENGINEERING LTD. has specialized Departments and each department is divided to cover the different types and styles of property, plants, buildings and construction . The divisions based on distinctive features are as follows:

- Residential & Housing
- Commercial & Businesses
- Administrative & Organizations
- Governmental & Public
- Touristic & Hotels, Resorts
- Educational & Cultural
- Trade Centers & Malls, Hyper
- Sport & Clubs
- Industrial & Factorial
- Sites & Open Areas

We execute all projects in accordance with technical and financial strategies to fit the distinctive character of the construction projects and to achieve the maximum benefit for our customers.

**AN MEP ENGINEERING FIRM DEDICATED TO
MEET THE SPECIFIC NEEDS OF ANY PROJECT.**

BACKGROUND

SAHARA MEP ENGINEERING LTD. Is a major player in Electro-mechanical fields has a good C.V for Supplies and Turnkey Projects and well known customers in the African market.

Our Primary purpose is to complete the supply, install, service and upgrade chains in the Electro - Mechanical fields. With our staff experience and technical know-how,

We have become a one stop shop for our clients' total Electro-Mechanical needs.

SAHARA MEP ENGINEERING LTD enjoys a strong presence on various markets in:

- TRADING
- CONTRACTING
- SERVICES
- MAINTENANCE
- MANUFACTURING
- DEVELOPMENT

Within a very competitive position, this is the result of high efficiency and full autonomy in phases of:

- PLANNING COORDINATION
- ENGINEERING PERSONALITY
- QUALITY CONTROL
- AFTER SALES

Today SAHARA MEP ENGINEERING LTD is one of the leading MEP Contractors operating in MEP sectors, and is capable of offering full range of Contracting, Engineering Services in the fields Energy, Electrical, Lighting, Electro-mechanical (MEP), low current systems, Safety & Security, Measurements & Meters, Process Equipment, Motors, Generators, Pumps, Water, Drainage, Plumbing, Pipe lines & Fittings, Oil & Gas field Services, Factorial Installations, Marking, Fencing and Automatic Control, BMS & Automation, HVAC systems, Ducting., Chillers.

Every day, SAHARA MEP ENGINEERING LTD offers (Optimum & Economical) Quotes to its customers, required for MEP Services & Solutions according to approved standards and an ever wider range of Products & Services.

OUR VISION

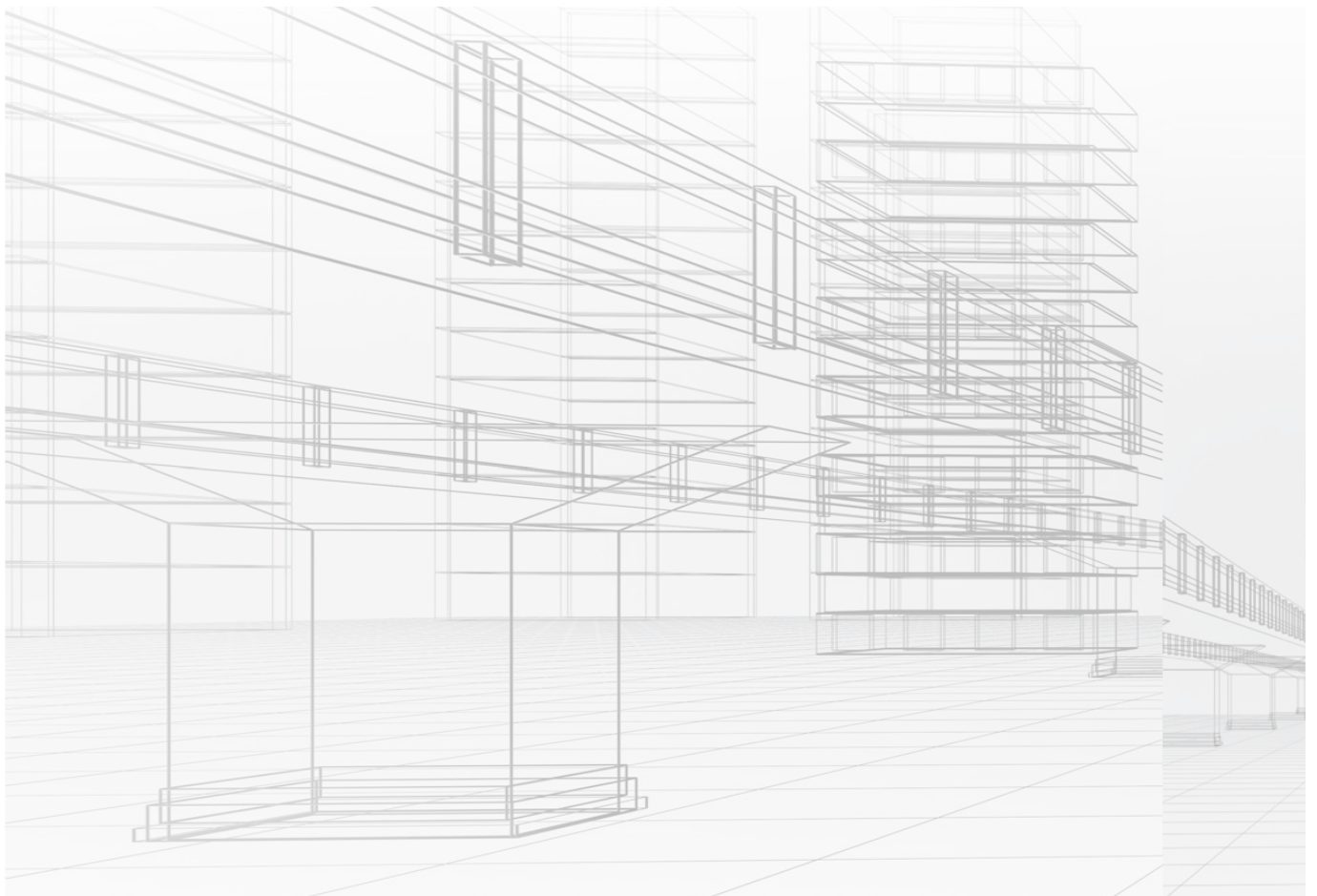
To become one of the leading and most reliable MEP contracting companies in West Afrca.

OUR MISSION

Guided by our vision we shall deliver high-quality, cost-effective projects on schedule and enhance our client's satisfaction through continuous improvement of our business practices in terms of safety, quality, service delivery as well as sound environmental awarness policies.

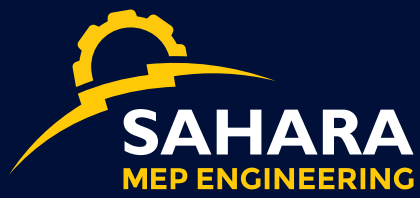
PROJECTS

Kindly refer to our website www.saharamep.com for more information about our projects.





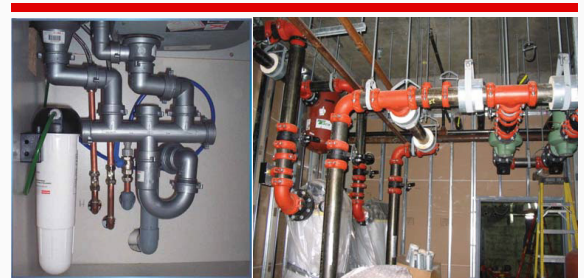
WE BRING
LIFE
TO GREAT
STRUCTURES



BUSINESS SEGMENTS

ELECTRICAL

- POWER DISTRIBUTION SYSTEMS
- LIGHTING CONTROL
- POWER GENERATION
- LOW CURRENT SYSTEMS
- TELEPHONE & DATA SYSTEMS
- HOME AUTOMATION
- MATV SYSTEMS
- CCTV
- FIRE DETECTION & ALARMS
- ACCESS CONTROL SYSTEMS
- AUDIO / VIDEO INTERCOM SYSTEMS
- INDUSTRIAL PROCESS SERVICES.
- P.A. SOUND SYSTEMS



PLUMBING & PUBLIC HEALTH ENGINEERING

- HOT & COLD WATER SUPPLY SYSTEM
- WATER FILTRATION SYSTEM
- IRRIGATION SYSTEM
- SWIMMING POOL
- DRAINAGE
- SANITATION
- RAIN WATER
- SEWAGE TREATMENT
- LPG/NG SYSTEM





HVAC INSTALLATION & DUCTING SYSTEMS

- G.I & P.I DUCTING INSTALLATION SYSTEM
- CHILLED WATER PIPING SYSTEM
- PACKAGE UNITS, DX UNITS AND FAN COIL UNIT
- INSTALLATION
- VENTILATION SYSTEMS
- ECOLOGY UNIT INSTALLATION SYSTEMS
- KITCHEN HOOD EXHAUST AND FRESH AIR SYSTEM
- CHEMICAL FLUSHING & 3RD PARTY TESTING
- REPORTS
- AIR BALANCING SYSTEM AND CERTIFICATIONS



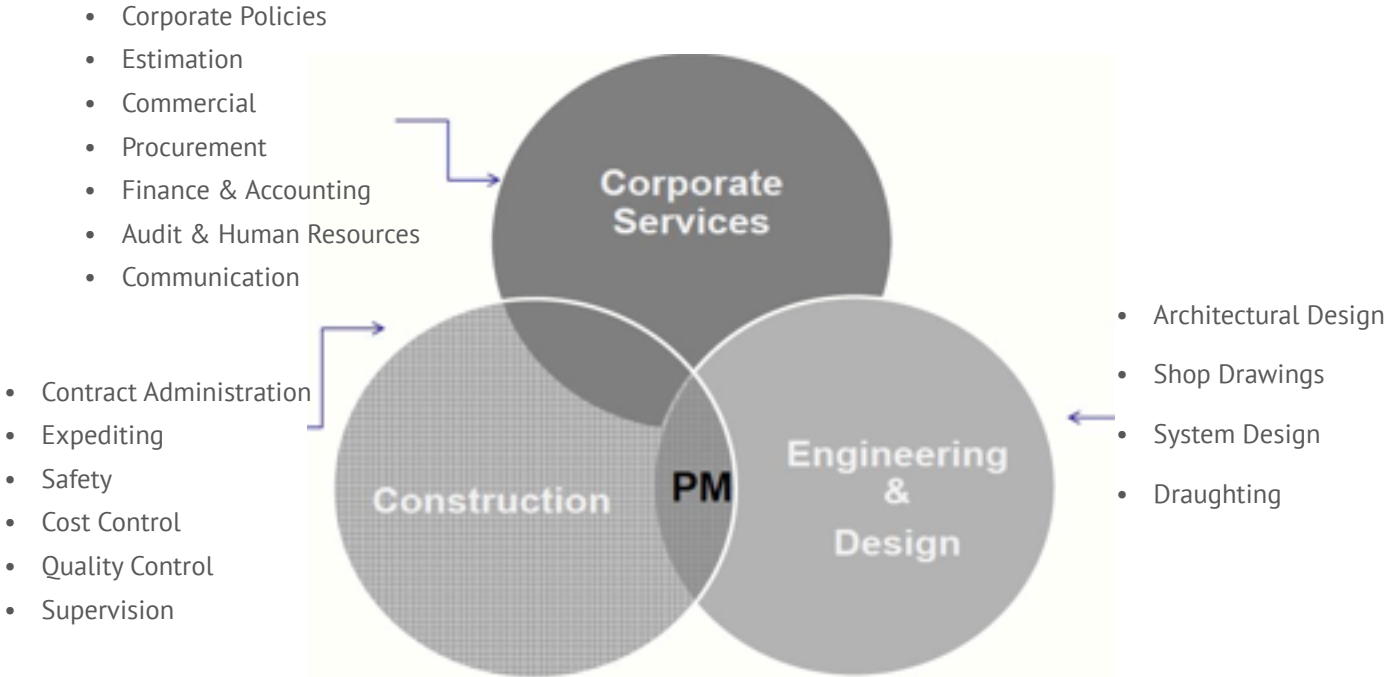
FIRE FIGHTING & FIRE ALARM INSTALLATION SYSTEMS

- FIRE FIGHTING - SPRINKLER INSTALLATION & MODIFICATION SYSTEM
- FIRE ALARM - INSTALLATION & MODIFICATION
- FACP PROGRAMMING, TESTING AND COMMISSIONING
- EMERGENCY / EXIT LIGHTING SYSTEM
- CIVIL DEFENSE APPROVALS & EHS CERTIFICATION.
- FIRE SUPPRESSION SYSTEM



BUSINESS OPERATIONS

OPERATIONAL ACTIVITIES



PROJECT MANAGEMENT

1	2	3	4	5	6
DESIGN	ENGINEERING	PROCUREMENT	CONSTRUCTION	COMMISSIONING	OPERATIONS & MAINTENANCE
<ul style="list-style-type: none"> • Design and planning of projects/plans • Detailed design of mechanical and electrical component • Civil guide layout and general arrangement drawing 	<ul style="list-style-type: none"> • Determination of all key component by: <ul style="list-style-type: none"> » Technical specification » Interface definition and management » Supplier evaluation » Documentation 	<ul style="list-style-type: none"> • Mainly party manufacturing <ul style="list-style-type: none"> • Manufacturing inspection • Long-term relationship with keys • Own process and product knowledge 	<ul style="list-style-type: none"> • Lead engineering function construction <ul style="list-style-type: none"> • Erection of electromechanical • Control of key plant construction milestone • Knowledge of local market and • Reliable constructions partners • Other constructions activities such as civil works in all house 	<ul style="list-style-type: none"> • Process knowledge and complex system interaction control • Detailed knowledge of plant and keys technology use • Start-up and test run 	<ul style="list-style-type: none"> • Spare parts stocks and service management • Short reaction time in case of plant malfunction • Maintenance and schedules • Plant optimization • Operations • Applies in IWP project ONLY Varies from one contract to others.

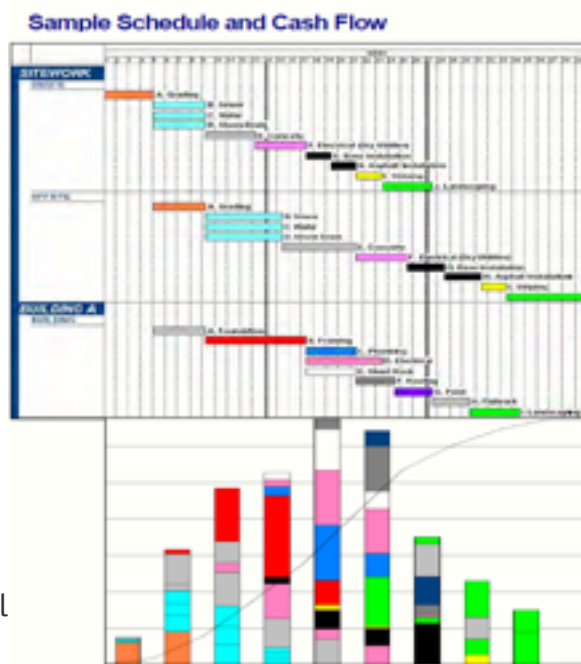
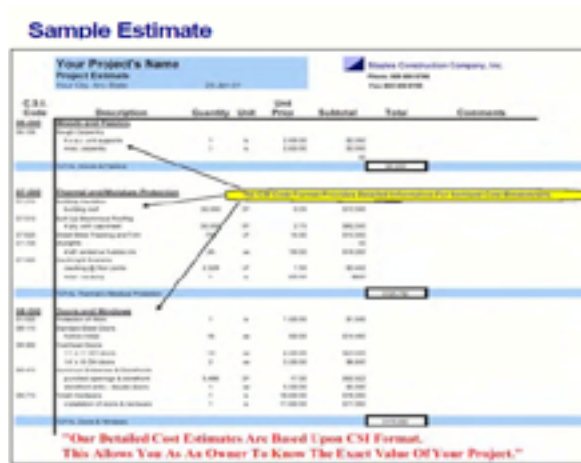
ESTIMATING & SUBCONTRACTING

ESTIMATING & SUBCONTRACTING

A fundamental part of our success is based upon our extensive database of qualified subcontracts. This is key to our ability to deliver quality workmanship, on-time and on-budget. Our prequalification process for new subcontractors includes a review of their staff finances and previous work experience. We believe that the quality of our work is directly related to the quality of the trade subcontractors involved and we demand superior performance.

We solicit multiple subcontract quotes for each of the disciplines involved in a project not only to ensure competitive pricing but also to safeguard against potential non-responsiveness by a subcontractor. Invoices are proceeded promptly and subcontractors are paid immediately upon receipt of monies compliance with owner’s expectation and subcontractor’s contractual obligation.

We ensure there is a clear understanding of the scope of work, safety expectation and time constraints prior to the commencement of work. We require comprehensive submittals and documentation of materials to ensure conformance to project specifications. Continual oversight and documented status meetings ensure compliance with project objectives. Upon completion, we perform a thorough punch-list sign off and owner acceptance process. We approach each project, regardless of size in the same proven manner. We believe that quality management is our responsibility to the owners.



PROJECT MANAGEMENT

PROJECT TEAM

- Experienced management teams provide detailed attention throughout the project, from design, review, and implementation.
- Qualified superintendents, trained in document, project and data control processes, are assigned to project types in which they have specific experience and expertise.
- Proven estimating skills and systems manage costs and contracts with cross-training for all levels of employees.

PROJECT KEY STEPS



SAMPLE PROJECT STRUCTURE



DSI PJSC provides the process technology and electromechanical solutions.

PROJECT CRITICAL PATH & DATA MANAGEMENT

CRITICAN PATH SCHEDULES

- Consistent utilization of critical path schedules to plan, manage and control projects.
- Tracking of long lead time items, permitting critical path tasks and adjustments for unforeseen weather conditions.
- Durations includes start and end dates key milestones work scope and deliverance for all phases of the project.

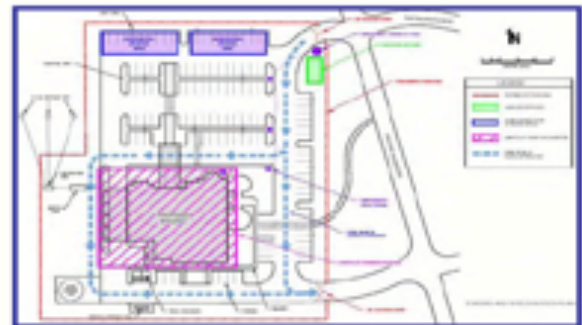
DATA MANAGEMENT SOFTWARE

- Extensive use of Expedition software a multi-user, multi –project, client/server database. Implemented for each project, controlling document and information.
- Organization of daily reports, meetings minutes submittals, RFILS, costs reporting. Insurance and project team contact information.
- Historical data used to resolve issues questions answered linking for quick referral.

PROJECT CONTROL

PROJECT CONTROL

- Closely manage projects with early warning systems to catch potential problems.
- Disciplined accounting system enforcing subcontractor requirements including lien releases and insurance.
- Project specific logistics planning for coordination meetings, inventory management and site utilization for construction sequence, staging areas, site offices and security options.



PROJECT CORDINATION

- Planning, communication, documentation and experience are required to maximize work flow, project execution and make materials delivery.
- Utilization of third party safety consultants offer neutrality of oversight, ensure subcontractor compliance and provide written compliance reports.
- Client and workforce safety is a top priority and requires precise logistical site control and adherence to regulatory safety requirements.



QUALITY CONTROL

- Clarify the objective and develop a scope of work with quantified, realistic budgets and schedules
- Proper document control, submittal review, project closeouts, as-built, start up and commissioning.
- Pre-qualification and selection of trades assuring that quality craftsmanship and materials comply with technical specifications.



PROJECT MATRIX

SERVICE MATRIX

Quality Project Management requires detailed and methodical internal practices and policies throughout each phase of the project.

LEGEND

PLANNING PHASE				
PRE-CONSTRUCTION PHASE				
CONSTRUCTION PHASE				
POST-CONSTRUCTION PHASE				

MANAGEMENT

	✓	✓	✓	✓
PROGRAM MANAGEMENT	•	•	•	•
PROJECT MANAGEMENT	•	•	•	•
CONSTRUCTION MANAGEMENT	•	•	•	•
OWNER'S REPRESENTATION	•	•	•	•
PROJECT TEAM FACILITATION	•	•	•	•
PROJECT STAKEHOLDER LIAISON	•	•	•	•
STRATEGIC PLANNING	•	•	•	•
PROJECT DEVELOPMENT	•	•	•	•
AGENCY INTERACTION*	•	•	•	•
CONTRACT NEGOTIATION	•	•	•	•
PREQUALIFICATION OF DESIGNER'S CONTRACTORS	•	•	•	•
FEASIBILITY***	•	•	•	•
***RECOMMENDATIONS	•	•	•	•
PROJECT DELIVERY METHODS	•	•	•	•
DOCUMENTATION STRATEGIES	•	•	•	•
CONSTRUCTION METHODS	•	•	•	•

CONTROLS

	✓	✓	✓	✓
BUDGET ESTABLISHMENT	•	•	•	•
BUDGET CONTINGENCY & ESCALATION	•	•	•	•
CASH FLOW ANALYSIS	•	•	•	•
BUDGET CONTROLS	•	•	•	•
CONCEPTUAL ESTIMATES	•	•	•	•
CHECK ESTIMATES	•	•	•	•
CHANGE ORDER ESTIMATES	•	•	•	•
COST REVIEW	•	•	•	•
VALUE ENGINEERING	•	•	•	•
PROJECT SCHEDULE	•	•	•	•
SCHEDULE INTERFACES / CONSTRAINTS	•	•	•	•
LONG LEAD ITEMS	•	•	•	•
SCHEDULE REVIEW	•	•	•	•
PHASING / LOGISTICS PLAN	•	•	•	•
MILESTONES	•	•	•	•
CHANGE ORDER VALIDATION	•	•	•	•
PERFORMANCE MEASUREMENT	•	•	•	•
COST & SCHEDULE ANALYSIS	•	•	•	•
PROGRESS REPORTING	•	•	•	•
ISSUES MANAGEMENT	•	•	•	•
CLAIMS AVOIDANCE	•	•	•	•
CLAIMS RESOLUTION	•	•	•	•

COORDINATION

	✓	✓	✓	✓
SCOPE DEVELOPMENT & REVIEW	•	•	•	•
DESIGN STANDARDS / CRITERIA	•	•	•	•
DESIGNER PROPOSAL REVIEW	•	•	•	•
PRE-DESIGN MEETINGS	•	•	•	•
DESIGN COORDINATION MEETINGS	•	•	•	•
DESIGN REVIEWS	•	•	•	•
TECHNICAL / SPECIFICATION WRITING	•	•	•	•
SPECIFICATION REVIEW	•	•	•	•
CONSTRUCTION DOCUMENTS REVIEW	•	•	•	•
SITE UTILIZATION PLAN	•	•	•	•
UTILITY AGENCY COORDINATION	•	•	•	•
PRE-BID MEETINGS	•	•	•	•
SUBCONTRACTOR BIDDING	•	•	•	•
CONTRACTOR BID REVIEW	•	•	•	•
CONTRACT REVIEW	•	•	•	•
SAFETY PROGRAM	•	•	•	•
PRE-CONSTRUCTION MEETINGS	•	•	•	•
SUBMITTAL REVIEW	•	•	•	•
CONSTRUCTION COORDINATION MEETINGS	•	•	•	•
CONSTRUCTION PROGRESS MEETINGS	•	•	•	•
QUALITY ASSURANCE	•	•	•	•
FIELD NOTICES	•	•	•	•
PAYMENT REQUISITIONS REVIEW	•	•	•	•
CHANGE ORDER REVIEW	•	•	•	•
CERTIFICATE OF OCCUPANCY	•	•	•	•
PUNCH LIST	•	•	•	•
CLOSE-OUT	•	•	•	•
TESTING, IMPLEMENTATION & START-UP	•	•	•	•
FURNISHING & EQUIPMENT	•	•	•	•

ADMINISTRATION

	✓	✓	✓	✓
CONTRACT ADMINISTRATION	•	•	•	•
MEETING MINUTES	•	•	•	•
SUBMITTALS LOG	•	•	•	•
REQUESTS FOR INFORMATION LOG	•	•	•	•
CHANGE ORDERS LOG AND ADMINISTRATION	•	•	•	•
PAYMENT REQUISITIONS	•	•	•	•
LIEN RELEASES	•	•	•	•
DRAWING LOG	•	•	•	•
CORRESPONDENCE	•	•	•	•
LABOR COMPLIANCE	•	•	•	•
INSURANCE	•	•	•	•
CLOSE-OUT DOCUMENTATION	•	•	•	•

PROJECT QUALITY PLAN

1.0 PURPOSE & SCOPE

The purpose of this quality plan is to define specific key requirements related to quality performance and ensures a thorough understanding of such by all project parties concerned.

Through PQP awareness and implementation the performance of the engineering, procurement construction and support functions may effectively and efficiently achieve their objectives and provide the Client with a Project that fulfills their quality requirements and expectations.

The PQP is supplemental to SAHARA MEP ENGINEERING LTD. Quality Management System (QMS) and provides the Mechanism to link specific requirements of the Client / project to those of SAHARA MEP ENGINEERING LTD. quality system.

In summary the PQP details the activities and responsibilities related to:

- Mobilization
- Engineering
- Procurement and Material Management
- Planning
- Execution
- Coordination for Major Subcontractors and Specialists
- Quality Control
- Contracts Administration
- Document Control
- Warehousing
- Quality Assurance
- Site Administration

And ensuring that these related activities are planned, implemented and controlled and their progress and Effectiveness is monitored.

The above summarized and referenced key activities are further expanded upon within the following PQP

2.0 PROJECT IMPLEMENTATION

Necessary project planning and controls shall be established as part of the developed SAHARA MEP ENGINEERING LTD.

Quality Management System and as appropriate the quality plan refers to this documentation under the key Activity headings within this section.

2.1 MOBILIZATION

Mobilization is defined as the period starting from contract award and continuing until all Construction Support facilities and infrastructure is complete. Key activities and controls to be established are:

- Programs - design / procurement / construction
- Plant and equipment approved budget
- Organization and staff resources
- Document control system
- Procurement tracking system
- Project Quality Plan (including method statement scheduling)
- Project Safety Plan
- Setting up of site offices, accommodation, temporary works.
- Initiation of early temporary or permanent work materials procurement

2.2 ENGINEERING (H. O.)

Review of contract drawings, specifications obtain / provide clarifications, coordinate among all related Disciplines and produce shop drawings within performance parameters. Key activities and controls to be established are listed below:

- Shop Drawings
- Production program
- Organization of engineering personnel
- Identification, notification and implementation of changes
- Drawing submittal

2.3 PROCUREMENT AND MATERIAL MANAGEMENT (H. O.)

To prepare technical packages comparisons for permanent materials and to secure competent and reliable sources for procurement. Key activities and controls to be established are:

- Procurement program
- Preparation of material submittal for Client approval in accordance with the terms of contract agreement, contract scope of work, approved drawings and specifications
- Approved material deliveries to the project warehouse
- Procurement tracking report on suppliers

2.4 PLANNING

To develop planning schedules, monitor, accommodate changes and report progress. Key activities and controls to be established are:

- Mobilization program covering all aspects of mobilization, design, procurement and early construction activities
- Detailed construction program
- Program review
- Work package program for subcontractors
- Program Monitoring and control

2.5 EXECUTION

Execute the construction program within the set performance parameters defined by approved shop drawings, approved material submittals and approved quality controls. Key activities and controls to be established are:

- Short term programs to direct and control the works
- Weekly productivity reporting /Planned vs. Actual Progress
- Weekly procurement reporting
- Formal pre-qualification of subcontractors and suppliers
- Weekly design progress reporting
- Method statement schedule and update as necessary
- Inspection and test planning (Process Control Sheets)
- Monthly quality performance reporting
- Monthly safety performance reporting
- Monthly update of the contract program

2.6 COORDINATION OF MAJOR SUBCONTRACTORS AND SPECIALISTS

Coordination of technical matters, material procurement deliveries to site and site progress. Key activities and controls to be established are:

- Monitor material and drawing submittals and timely processing of such with client for approval
- Coordination with internal / external parties to ensure potential problems are lighted and reported.
- Monitor and report on progress and performance at scheduled weekly progress meetings

2.7 QUALITY CONTROL

To carry out the QC activities required for achieving compliance with defined plans and specifications through the organization of respective works on site and monitoring quality activities. Key activities and controls to be established are:

- Coordination of the review of subcontractors /supplier quality related documentation and QA / QC resources
- Preparation and monitoring of defined process control documentation , inspection and test planning and associated work execution
- Establishing coordinated inspections and tests and associated records
- Recording of observations /non-conformance and corrective /preventive actions

2.8 CONTRACT ADMINISTRATION

Monitor, administer and protect the Company's contractual and financial relationship with client, consultant, subcontractors and suppliers. Key activities and controls to be established are:

- Settlement of the final account and final cost.
- Monthly Interim Application for payment.
- Identification, recording and notification of changes which may be identified through any of the following:
 - ◇ Variations arising during the preparation of shop drawings.
 - ◇ Changes in the scope suppliers /subcontractors /specialist work.
 - ◇ Request for clarification.
 - ◇ Meetings with the client.
 - ◇ Corrective actions identifying errors or omissions in the contract documents.
 - ◇ Formal notification from the employer.
- Comprehensive file of each subcontractor / supplier / specialist shall be maintained including signed copies of the subcontract / supplier / specialist, progress and approved payment vouchers.

2.9 DOCUMENT CONTROL

SAHARA MEP ENGINEERING LTD. Research & Development Department and associated processes and procedures will as appropriate be utilized to develop and implement the following controls:

- Receiving Documents and Workflow Tracking
- Generating Documents
- Document Security, Retrieval and Disposal
- Generating Internal Document
- Information Technology Help Desk
(ITD Dept Processes/procedures- refer to Appendices)

2.10 WAREHOUSING

Receive, store, protect and distribute materials as required by construction. Key activities and controls to be established are:

- Ensure permanent materials are acceptable prior to release for site use
- Status recording and reporting of materials arrival and notification to concerned construction team
- Upon delivery of material at site the following initial verification will be carried out:
 - ◇ Inspection of delivery documentation against the Purchase Order
 - ◇ Checked for quantities under, over and obvious damage
 - ◇ Notification to site QC for inspection
 - ◇ Computer data entry in store receiving system
- The issuance of material shall be made on request and warehouse records and computer data base updated accordingly
 - ◇ Stores receiving voucher (SRV)/Material Receiving Report (MRR)
 - ◇ Site request to stores
 - ◇ Store Issue Voucher (SIV)
 - ◇ Materials /services acceptance
 - ◇ Weekly permanent materials report
 - ◇ Reconciliation of as-built quantities and material wastage

2.11 QUALITY ASSURANCE

- To carry out the quality assurance activities required for achieving compliance with defined plans, manuals, processes, procedures, and method statements. Key activities and controls to be established are:
 - Provision and maintenance of a documented QMS
 - Internal audits of documented QMS
 - Provision of in-house training on the QMS to project personnel
 - Performance reporting for Management Review

2.12 SITE ADMINISTRATION

To provide a wide variety of administrative services to the project, including the maintenance of personnel files, handling and storage of consumable materials related to administrative services. Key activities and controls to be established are:

- Transfer of employees between projects
- Personnel evaluations in liaison with HO Human Resources Department

PROJECT REALIZATION

3.1 INTRODUCTION

When the process of achieving results is planned, designed and managed effectively, the quality of the end result becomes predictable. To achieve this project goal, assigned key project team members shall plan and develop processes and associated supporting documentation that will encompass a systems management approach. The organization shall implement defined methodologies and monitor their effectiveness and efficiency in order to provide control of the quality of project activities undertaken as summarized in Section 2.0 of this document.

3.2 SHOP DRAWINGS PRODUCTION

A project management coordination role shall be established by the Engineering Department and key responsibilities, authorities and interfaces (including those with the Client, Sub-contractors and/or Suppliers) shall be clearly defined. Verification reviews shall be in accordance with the standard construction and civil engineering criteria. The production of shop drawings to complete the work shall be made under the direct control of the Company Engineering function at Head Office

3.3 PURCHASING CONTROL

SAHARA MEP ENGINEERING LTD. aims to establish sound supplier and subcontractor relations in order to develop a mutually beneficial relationship that improves the ability of all parties to create value to a project. Assessment and recording of new and existing suppliers / subcontractor's capabilities and performance shall be implemented by the Company Supply Chain (SCD) Department at Head Office in liaison with project management. Effective controls shall be implemented to ensure that the interfaces between suppliers /subcontractors, project management and the Client are clearly defined whilst delivering products or services to the project that meet with the specification requirements.

3.4 CONSTRUCTION

These activities relate to a wide cross section of resources, including a wide base of personnel, skills, plant and equipment. The Company shall ensure by careful planning the provision of proper project controls during work execution, and satisfactory resourcing for the projects. Such controls will be defined within the following quality system documents:

- Project Quality Plan (PQP)
- Department manuals /programs
- Processes
- Procedures /method statements
- Records (forms / formats)

For specific elements of production that are difficult or impossible to immediately validate, (e.g. concreting, painting, welding, etc.) work procedures and/or method statements shall be established for approval prior to the commencement of the work process to ensure that the correct result can be achieved.

3.5 IDENTIFICATION AND TRACEABILITY

Appropriate methods shall be established by both SAHARA MEP ENGINEERING LTD. (HO) and on site for identifying and recording the identification, and traceability status of materials, products, services throughout all stages of the project as defined in the respective processes for Procurement and Quality Management.

3.6 PRESERVATION

Throughout construction operations, appropriate methods of identification, handling, packaging, storage and protection shall be employed to ensure that all goods, materials, product and site provisions are properly protected from damage, deterioration and loss.

This is also important with regards to property belonging to the Client, which may include intellectual property (e.g. designs, drawings) and project site itself.

3.7 MONITORING AND MEASUREMENT DEVICES

SAHARA MEP ENGINEERING LTD. will determine the extent of monitoring and measurements to be carried out on a project-to project basis. Suitable measurement and monitoring devices shall then be selected and used to provide evidence of product conformity.

Systems will be established to evaluate the validity of measurements taken should the relevant measurement by the said equipment be out of calibration.

Effective controls shall be established for Company laboratory and survey equipment, determine as requiring periodic calibration, where consistent verification measurements on product conformity are essential.

Similarly, subcontractors monitoring and measurement devices shall be identified, reviewed and confirmation of their calibration status made.

3.8 MEASUREMENT, ANALYSIS AND IMPROVEMENT

This element of project control shall be planned in order to provide a clear organization-wide approach to continual improvement of the project performance of key project activities (i.e. Key performance Indicators) and shall be regarded as permanent Company objective.

Elements of control shall focus on four (4) areas of the Company activities:

- Product conformity - by monitoring and measuring the product (QC)
- Quality management system conformity - by internal and intrinsic audit (QA)
- Continual improvement of the effectiveness of the quality management system by:
 - ◇ Internal audit (QA)
 - ◇ Monitoring and measurement of the processes (KPI 's)
- Evaluation of appointed Suppliers and Subcontractors.

The analysis of data in relation to the results from the above elements of control shall be collected and reviewed in order for management to evaluate where best to deploy appropriate improvement action plans and resources.

3.9 CORRECTIVE ACTION

SAHARA MEP ENGINEERING LTD. has developed and established a procedure that details and records the corrective actions taken to eliminate the cause of non-conformities in order to prevent their recurrence. Corrective action implemented will be appropriate to the impact of the problem encountered.

3.10 PREVENTIVE ACTION

SAHARA MEP ENGINEERING LTD has developed and established a procedure that details and records the preventive actions taken to eliminate the cause of potential non-conformity in order to prevent their occurrence.

Preventive action implemented will be appropriate to the impact of the potential problem encountered.

4.0 PROJECT MANAGEMENT RESPONSIBILITIES

The goals set by SAHARA MEP ENGINEERING LTD. executive management relevant to the success of the Project shall be effectively communicated throughout the organization and such responsibilities, authorities etc shall be defined and performance monitored on an ongoing basis.

Appropriate communication channels shall be established within the project organization including interfaces with external parties.

A summary of the responsibilities for key project functions is given in within this Section, in line with those specific project responsibilities defined with the relevant SAHARA MEP ENGINEERING LTD. manuals, processes, procedures, method statements etc to be implemented on the project.

4.1 PROJECT MANAGEMENT CHIEF ENGINEER

- Comprehensive review of all contract documents, and the further development of project planning in line with Company and contractual requirements.
- Provide necessary leadership and resources to Construction for the effective and efficient execution of all project works.
- Ensure engineering controls are effectively established for planning, production and approval of drawings in line with approved project schedules.
- Establish material management controls for the approval, purchase and delivery of permanent materials.
- Review, approval and presentation of progress reporting to the Client.
- Oversee the establishment and reporting on the implementation of Safety and Quality Management programs
- Promote continuous performance improvement for all project functions to enhance Client satisfaction
- Detailed performance reporting to the Director (HO), on time, cost, quality and safety related issues.

Ensure that during the leave period of an employee, his responsibilities are properly handed over to a designated person and project staff are aware of this procedure.

4.2 ENGINEERING

PROJECT COORDINATOR (H.O.)

- Familiarization and awareness of project design drawings and specifications requirements
- Production of the project civil shop drawings through assigned drafting personnel
- Coordinate with other disciplines in the Project Engineering function to ensure compatibility of project works
- Maintain continuous coordination with construction team to ensure understanding of project's design and specification details.
- Participate in meetings with other Project disciplines, subcontractors etc and as required resolve engineering queries or issues raised.
- Collaborate in producing project progress reporting, forecasts, and as required special engineering reports.
- Coordinate / liaise with other engineering trades especially the Specialist subcontractors (MEP, Cladding, Architectural firm, etc) to resolve issues on interfaces during the Design and Construction stages.
- Perform other essential project engineering / associated duties agreed and assigned by project management.

STRUCTURAL ENGINEER (H.O.)

- Review project structural drawings and specifications.
- Develop the structural shop drawings in accordance with the specifications, designs, and in coordination with all other specializations (i.e. architectural, civil, electrical and mechanical).
- Review structure design for modification or change as and when required.
- Collaborate in preparing project studies, reports, forecasts and special engineering reports as and when requested.
- Perform other essential project structural engineering / associated duties agreed and assigned by management.

DRAFTING PERSONNEL (HO & SITE)

- Suitably qualified and experienced assigned personnel shall as applicable prepare CAD shop drawings for set architectural / mechanical / electrical / structural work assignments.
- Produce drawings in varying degrees of detail utilizing CAD files and maintaining uniform and professional standard of presentation utilizing approved software.
- Incorporate input given by the Architects / Engineers into the relevant drawings.
- Perform back-up procedures as per defined Company instruction.
- Record and prepare as built drawings from various project sources
- Perform all duties (related to the nature of the job) assigned by his immediate supervisor.

4.3 SUPPLY CHAIN MANAGEMENT

SENIOR EXECUTIVE (H. O.)

- Perform detailed reviews of pre/ post tender project documentation/ quotations, budget details, drawings, bills of quantities and pre-tender quotations.
- Examine contract documents to identify material and subcontract requirements for the project.
- Review project construction schedules prepared by Planning Department in relation to Material deliverables.
- Formalize listings of potential suppliers for the different material items and subcontracted scope of works in close coordination with HO SCD.
- Review received quotations to verify they are in accordance with project specifications, shop drawings, bill of quantities and delivery schedule meets with the project construction schedule.
- Contact suppliers/ subcontractors for clarifications concerning materials for the site.
- Prepare a comparison sheet to summarize the contents of received quotations.
- Maintain the Project Material Specification Record (data base)
- Prepare submittals to the client for approval of material, subcontractors, suppliers in close coordination with HO SCD
- Provide assistance in the follow-up of material delivery to site and coordinate with the Construction Department on issues related to the Material requirements.

4.4 MEP (MECHANICAL ELECTRICAL AND PLUMBING)

MEP COORDINATOR

- Follow up the progress of;
 - Construction of works & compliance with construction schedule.
 - Drawings submittals & Approval thru weekly drawings status report.
 - Materials submittals & Approval thru weekly materials status report.
- Review & Study the Technical submittals & Shop drawings received from MEP sub contractor, any comments to be sent immediately to the sub contractor prior to forward the same to consultant for approval.
- Review the received daily works report from sub contractor and to compare the contents with Executed works at site.
- Review the Staff & Equipments daily report received from the sub contractor in order to check whether it is match with submitted organization chart and to be sure from available tools & equipments are enough to execute the works.
- To avoid any delay to MEP sub contractor works which will give reason to the sub contractor to claim for delay, should cover officially any delay to SAHARA MEP ENGINEERING LTD. works caused by sub contractor & report it to the project manager..
- Follow up the QC & inspection of executed works & received materials to site and be sure it is comply with approved technical submittal and contract specification, Also interconnection between Client / Consultant & Sub-Contractor
- Review the submitted Monthly payments from the Sub Contractor prior to forward this payment to SAHARA MEP ENGINEERING LTD. - Q.S. Should report directly to the project manager administratively and functionally.

4.5 PLANNING

SITE PLANNING ENGINEER

- Study contract documents and obtain complete information necessary to develop detailed construction programs.
- Prepare detailed programs / coding structure to the level of details agreed with the Chief Engineer.
- Monitor at agreed intervals actual site progress of the works and update the master program logic to reflect any variance, V.O issues, changes in sequence/ method, etc.
- Participate in the preparation of the necessary programs as required (Weekly, Short term/ periodic etc)
- Prepare various reporting and statistics as requested by the Chief Engineer.
- Ensure traceability of planning records/ programs, progress reporting is maintained and complete backed filing and indexing.
- Perform all duties (related to the nature of the job) assigned by the Chief Engineer.

4.6 EXECUTION

PROJECT INCHARGE

- Study contract documentation / specifications and obtain complete information to as necessary assist in the development of detailed construction programs and method statements.
- Examine contract documents to identify material, subcontract and supplier requirements for the project execution/specification compliance.
- Participate in meetings with other Project disciplines, subcontractors etc and as required provide input into the resolving queries /issues raised.
- Collate as-built information necessary for issue for the preparation of as-built record drawings
- Review and evaluate work methodology and sequencing and liaise with the Project Manager / Planner regarding suggested work improvements
- Prepare detailed safety planning with the assigned Safety Officer and implement, monitor and manage the overall safety program during execution.
- Coordinate with assigned subcontractors work packages ensuring SAHARA MEP ENGINEERING LTD. / Client contract requirements are met (i.e. on quality, safety, program and budget).
- Hold daily internal construction coordination meetings and attend scheduled progress meetings, reporting on work performance, coordination issues, time, quality, safety, cost issues against defined /approved programs.
- Organize project work execution utilizing suitably skilled /trained personnel to carry out specific tasks in accordance with approved procedures and specification requirements, including Site Survey works.
- Ensure that Supervisory personnel are provided with the latest revisions of approved project documentation and familiar with documented process control requirements and Request For Inspection system, associated reporting
- Maintain close communication with the Materials Engineer/ Warehouse regarding material submittals /approvals, ETA on site and stores receipt and clearance.

SITE ENGINEERS

- Supervise crews of laborers in their performance of assigned work.
- Review drawings and clearly communicate technical issues to the various trades.
- Apply schedules, procedures and related work rules that meet productivity, quality and safety requirements.
- Report to Project Incharge on any problems related to the absence of manpower, materials or equipment that relate to time, cost, quality, safety etc
- Assist the Project Incharge in the preparation of construction methods, schedules and manning charts.
- Perform general functions inherent to all supervisory jobs on site operations.

4.7 QUALITY CONTROL

MANAGER (R&D)

- Primarily responsible for the development and implementation of project quality planning throughout all project operations.
- Oversee project inspection and test planning, development and implementation.
- Scheduling and execution of project quality system assessments and audits.
- Liaison with the Clients representative on quality related topics.
- Establish QA/QC records control and retrieval system.
- Implement quality control procedures and related activities in compliance with defined requirements.
- Overall monitoring of site construction activities and QC personnel reporting on inspection and test requirements.
- Site monitoring and surveillance of subcontractors/ suppliers against detailed schedules for compliance with defined standards and specifications.
- As applicable conduct off site inspections for project associated work carried out at subcontractors / suppliers, verification of associated submittals and preparation for client submittal.
- Evaluation of the Observation / Non Conformance reporting systems and as applicable associated corrective / preventive action implementation.

LABORATORY TECHNICIAN

- Closely coordinate with independent laboratory to ensure all sampling and testing requirements are carried out according to the Project Specification requirements.
- Ensure system of obtaining random samples of material from suppliers and site are properly implemented.
- Apply and execute the suitable analytical test methods on different material samples obtained / tabulation of results and present reports.
- Prepare and carry scheduled tests and advise appropriate parties accordingly
- Ensure that all laboratory testing and analysis executed are in accordance with established quality and safety standards and procedures.
- Revise the stock records of laboratory chemicals and equipment; raise purchase requisitions to the superior for approval.
- Perform routine maintenance on equipment and as applicable periodic calibration of laboratory instruments and devices. Ensure that all laboratory equipment is properly operated, maintained and stored.

4.8 CONTRACTS ADMINISTRATION QUANTITY SURVEYOR

- Valuation of change orders, assessment of Subcontractors / Suppliers variation orders and claims.
- Maintain all records / correspondence pertaining to change orders, loss of expenses and delays.
- Assist Contract Administrator in preparation of reports on change orders / claims for Senior Management.
- Participate in negotiation with Client / Engineer / Subcontractor for settlement of final accounts and variation orders.
- Ensure that all executed works and materials on site are correctly valued in monthly payment applications.
- Liaise with Consultant / Supervising Engineer for timely certification of payment.
- Certify Subcontractors / Suppliers interim payments and make adjustment to the amount due to be paid by add / omit default costs arising from breaches and recover SAHARA MEP ENGINEERING LTD. costs as defined in subcontract agreement.
- Prepare statement of account of subcontractors / suppliers.
- Quantities take off for Procurement of permanent material.
- Submit to accounts department on monthly basis the forecast of revenue and Expenditure

4.9 SAFETY

SAFETY OFFICER

- Contribute to the development and implementation of the Project Safety Plan, rules, regulations and safety training programs.
- Ensure Safety Induction to all operatives/ visitors in the project is carried out prior to their deployment on site.
- Develop and maintain Safety Toolbox meetings and ensure topics undertaken are consistent with the current situations on site.
- Ensure that all safety measures are fully implemented with regards to storage and usage of materials and equipment at the various work areas.
- Consistently check the proper implementation of Safe System of work in all stages of the project execution.
- Investigate and report on incidents accidents on site.
- Maintain records of safety audits, incidents/ accidents, trend analysis, and make reports and recommendations.
- Accompany Client's safety inspectors on their periodic safety inspections of the site.
- Provide guidance to maintain site cleanliness and tidiness standards in close coordination with the site administrator.
- Monitor on-site equipment usage (mobile, heavy plant etc.) and ensure its safe and proper handling.

ABBREVIATIONS:

PQP = Project Quality Plan

QMS = Quality Management System

ETA = Estimated Time of Arrival

V.O. = Variation Order

SIV = Store Issue Voucher

QUALITY POLICY STATEMENT

SAHARA MEP ENGINEERING LTD. firmly believes that our systemic and business processes, professionally followed and well accomplished by our enthusiastic staff, clearly indicates our care and continuance in providing high levels of our quality works, customer service and customer satisfaction.

SAHARA MEP ENGINEERING LTD. strives to consistently providing quality engineering with reliable and efficient maintenance services, subject to total compliance on all its requirements, and where possible exceeds the expectations of our customers.

SAHARA MEP ENGINEERING LTD. focuses on training and development of its personnel through flexibility and adaptability to service the overwhelming transforming business environment, by innovative working techniques and continuously improve the efficacy of our design and building management systems.

We will ensure that all our staff having good knowledge and understanding of our quality objectives, working towards meeting the system requirements, and committed to developing processes and promoting new ideas.

To address and achieve and ongoing progress in quality service and customer satisfaction, SAHARA MEP ENGINEERING LTD. will maintain, review and revise its quality objectives and targets annually

SAHARA MEP ENGINEERING LTD. will conduct quality audits and reviews on all operational activities at least once a year, and will allocate human, financial and other resources appropriately in order to achieve targeted results.

Currently, SAHARA MEP ENGINEERING LTD. is committed with established quality management system, both administrative and operational, to work towards continuous improvement on its quality performance.

ENVIRONMENTAL MANAGEMENT POLICY STATEMENT

SAHARA MEP ENGINEERING LTD. aims at preserving the environment for our future and provides its support to free the planet from CFCs. We will identify and better manage our environmental risks and opportunities.

SAHARA MEP ENGINEERING LTD. closely observes and works with employees, clients, suppliers and other related organizations to upgrade our enduring operational strategies and working procedures to best practice standards.

SAHARA MEP ENGINEERING LTD. prime target operationally is to eliminate our negative environment impact by whatever possible minimizing the wastage, and prevent the usage of environmentally unfriendly products, while endeavoring to maximize our positive environmental impact and better living conditions.

We will keep up and maintain the environment around us clean and safe, and regularly monitor, raise alarm and respond to any hazardous environmental situation observed.

SAHARA MEP ENGINEERING LTD. ensures that its activities will always comply with the Government's Environmental Policy, follow and maintain them in all our administrative, operational, logistics and site areas of our projects.

SAHARA MEP ENGINEERING LTD. affirms that all managerial and supervisory staff are accountable for environmental performance in their area of responsibility.

HEALTH AND SAFETY POLICY STATEMENT

SAHARA MEP ENGINEERING LTD. firmly believes in the significance of health and safe working practices of our employees, as it forms the fundamental part of the effectiveness and efficiency of our management. Furthermore, as an organization and the employer, we do acknowledge our commitment, so far as is reasonably, in ensuring for the health and safety of our employees, public health and not to endanger our environment.

SAHARA MEP ENGINEERING LTD. recognizes that in our duties and responsibilities to our employees, the foremost requirement is providing and maintaining hygienic conditions, healthy environment and safe work practices in addition,

SAHARA MEP ENGINEERING LTD. also comprehends the relationship between efficiency and safety in terms of cost control, losses, ill health and the lost time injuries due to accidents and near misses

Every managerial and supervisory staff shall apply the organizations safety policy and all legislative provisions in their areas of control and execute all reasonably practicable measures to provide a healthy and safe working environment.

We also consider that every employee in our organization has an individual responsibility ensuring strict adherence to company's and all legislative safety requirements and it is their obligation working with the management in maintaining good standards of Health & Safety.

Furthermore, SAHARA MEP ENGINEERING LTD. will conduct induction program and provide training and instruction to enable employees to carry out their duties in a safe and efficient manner, and as well make all necessary devices and protective equipment issued and supervise its use as required and will involve staff on all discussions to improve Health & Safety.

SAHARA MEP ENGINEERING LTD. will ensure effective consultation and co-operation with persons of other organization where both party's works involved on the same area, where either party's operations may affect either organization's employees.

To ensure effective implementation of this policy, SAHARA MEP ENGINEERING LTD. will make adequate financial, human resources available, with a review of the policy annually and the Management systems every six months carrying out audits to ensure compliance with the policy.

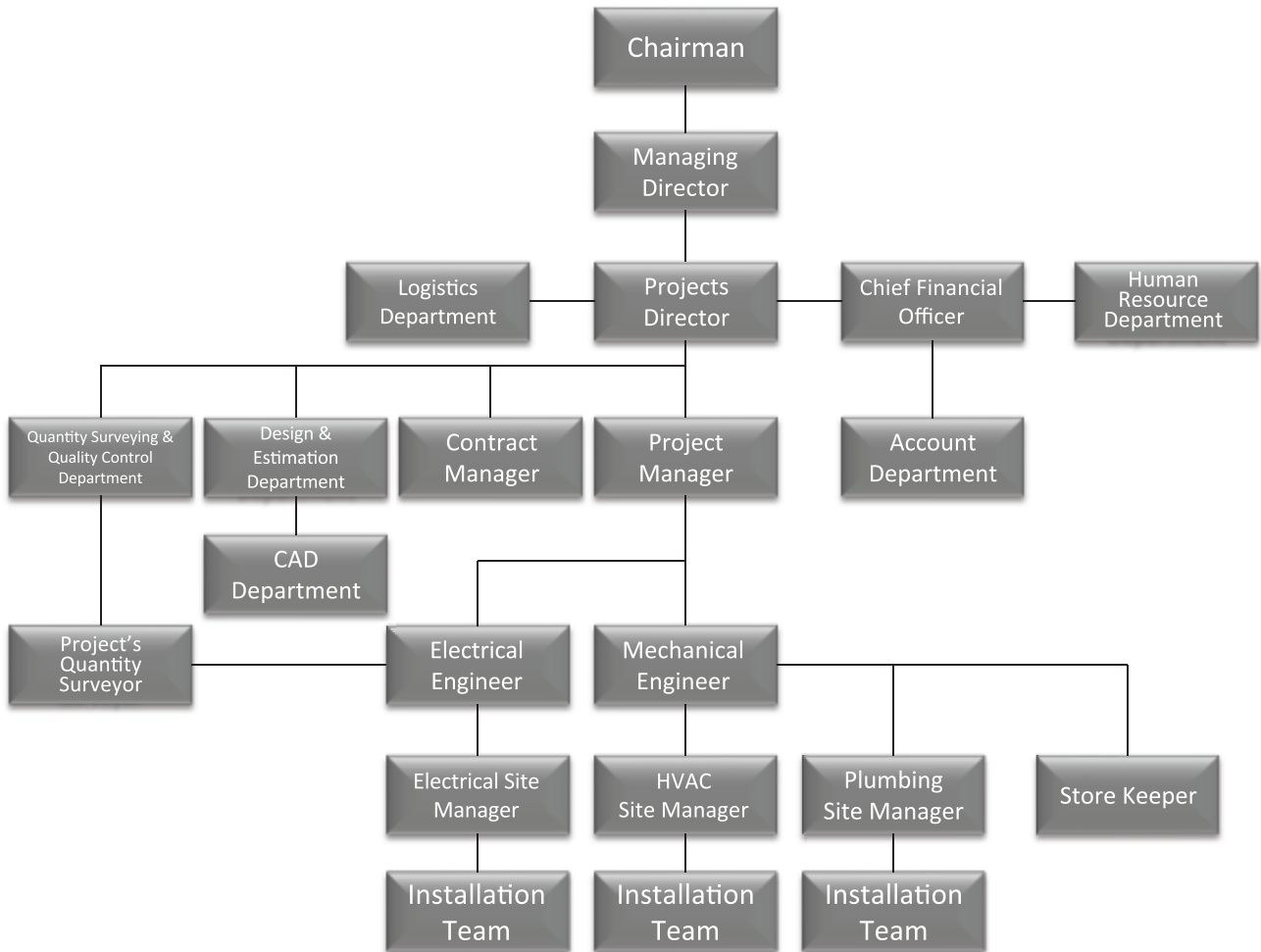
Our statement of general policy is:

- to provide adequate control of the health and safety risks arising from our work activities
- to consult with our employees on matters affecting their health and safety
- to provide and maintain safe plant and equipment
- to ensure safe handling and use of substances
- to provide information, instruction and supervision for employees
- to ensure all employees are competent to do their tasks, and to give them adequate training.
- to prevent accidents and cases of work-related ill health
- to maintain safe and healthy working conditions; and
- to review and revise this policy as necessary at regular intervals.

All employees have to:

- co-operate with supervisors and managers on health and safety matters
- not interfere with anything provided to safeguard their health and safety
- take reasonable care of their own health and safety and report all health and safety concerns to an appropriate person

ORGANIZATION CHARTS



ORGANIZATION CHART



GOVERNMENTAL COMERCIAL REGISTER

CS140352017 C0008393842


REPUBLIC OF GHANA

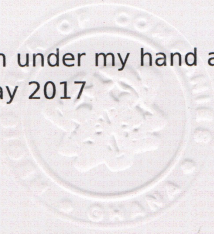
Certificate of Incorporation


I hereby certify that

SAHARA MEP ENGINEERING COMPANY LIMITED

is this day incorporated under the Companies Act, 1963 (Act 179) and that the liability of its members is limited.

Given under my hand and official seal at Accra, this 11th day of May 2017




.....
For: Registrar of Companies

GOVERNMENTAL COMERCIAL REGISTER

CS140352017 C0008393842


REPUBLIC OF GHANA

The Companies Act, 1963, Act 179
Certificate To Commence Business

I hereby certify that

SAHARA MEP ENGINEERING COMPANY LIMITED

having complied with the provisions of Sections 27 and 28 of the Companies Act, 1963, Act 179 is entitled to commence business with effect from **11th day of May 2017**

Given under my hand and official seal at Accra, this 11th day of May 2017

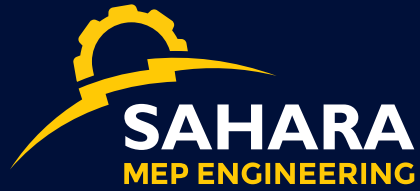



.....
For: Registrar of Companies

Proposed Plan
Scale 1:100

Project: <i>Blair's Farm Addition</i>	Client: <i>Mr & Mrs</i>	Drawn: <i>Jordan</i>
Drawing Title: <i>Proposed - Plan and Foundation</i>	Date: <i>07/04/20</i>	Dwg No.: <i>04-1000-01</i>
Scale: <i>As Indicated</i>		

" ... TOGETHER WE BUILD A BETTER FUTURE "



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