



Advance Engineering Consultant

Company Profile



Index

Sr. No.	Description	Slide No.
1	Summary	6
2	<u>AEC Introduction</u>	7-8
3	<u>Sectors</u>	9-10
4	<u>Oil & Gas Capabilities</u>	11-22
(1)	Bidding capabilities and experience	
5	Experience- Oil & Gas-India and Nigeria	
	EXPERIENCE	
6	Oil & Gas-India and Nigeria	
(2)	Engineering Capabilities –Oil & Gas	
7	Oil & Gas Capabilities	
(3)	Procurement experience and capabilities	

Index

Sr. No.	Description	Slide No.
11	<u>Diaphragm Wall</u>	35-38
12	<u>Roads, Highways, Expressways</u>	39
13	<u>Building Design</u>	40
14	<u>Port & Harbor</u>	41
15	<u>Airport & Aviation</u>	42
16	<u>Railway</u>	43

Index

Sr. No.	Description	Slide No.
17	<u>Telecommunication/Transmission</u>	44-45
18	<u>Riverfront</u>	46
19	<u>Formwork</u>	47-50
20	<u>Hydraulic Gates</u>	51-52
21	<u>Steel Detailing</u>	53
22	<u>Bridges & Flyover</u>	54
23	<u>Industrial Heavy Foundation</u>	55
24	<u>Tendering Service</u>	56-58
25	<u>Lighting Design</u>	59-63
26	<u>HVAC Design</u>	64-67
27	<u>CCTV</u>	68-71
28	<u>IT Security Service</u>	72
29	<u>Resources</u>	73-76

Index

Sr. No.	Description	Slide No.
30	Clients	77-79
31	Thank You	80

OUR OFFERING TO THE NIGERIAN MARKET. BRIEF SUMMARY

1. Based on our previous extensive experience in Nigeria we offer Bidding services for complex Multidisciplinary Small, Medium and Large EPC projects
2. We also offer international procurement services in India and far East, based on your clients approved vendor lists. Our services include technical and commercial tabulations, expediting, progress report, FAT attendance ,shipment
3. Our Engineering Services include: FEED, basic and detailed design and any other engineering support services that may be required by our customers to be executed both in Nigeria or in India.

Please see the following slides for more detailed information about our experience and capabilities, and past executed projects.

AEC Introduction

Advance Engineering Consultant (AEC) is a company engaged in consultancy in Civil ,Electrical ,Mechanical ,HVAC,Telecom and Instrumentation engineering. AEC was established in 1999 to develop consultancy services in India, Asia & Africa. The objective of AEC is to introduce the latest techniques, and to provide professional consultancy in multi-disciplinary areas of structural engineering, bridge engineering, highway engineering, traffic and transportation engineering, water resources engineering environmental engineering and engineering management.

The foundation of AEC's success is built with talent and capability of its professional staff. Lasting success does not come up simply with the award of a consultancy work, but with consistent high quality performance of a wide variety of technical and managerial tasks throughout the life of a project. AEC's recognition of this fact has enabled them to solve minor as well as major problems for our clients. The company is committed to quality service in the most effective manner.

AEC Introduction

AEC has well qualified professional and sub-professional staff enhanced by experienced project engineers with specialization in various disciplines. Most of the professional staff possess advanced degrees and have registration with relevant professional societies. The staffing pattern encompasses engineers, planners, designers, quantity surveyors & cost estimators, surveyors, economists and project management planners in allied engineering fields. The engineering tasks are supported by the quite competent staff in drafting, system analysis and computer programming.

AEC employs about 18 full time personnel in its office at Gandhinagar with Registered office in Dubai. AEC also draws the services of highly reputed part-time / Associate consultants / organizations under the specific needs from both academic and industrial communities representing diversified skills and disciplines.

AEC through its experience of more than two decade has acquired capabilities to undertake projects in different disciplines.

Sectors

- Oil & Gas
- Industrial Structure/PEB
- Water/Sewage Treatment Plant
- Water Supply
- Repair & Rehabilitation
- Diaphragm Wall
- Roads, Highways, Expressways
- Building Design
- Port & Harbor
- Airport & Aviation
- Railway
- Telecommunication/Transmission

Sectors (Continued)

- Riverfront
- Formwork
- Hydraulic Gate's
- Steel Detailing
- Bridges & Flyover
- Industrial Heavy Foundation
- Lighting Design
- HVAC
- CCTV

Oil & Gas Capabilities

Support throughout the project phase:

- Pre-feasibility/Feasibility studies
- Concept development
- FEED studies
- Extended basic engineering
- Detail engineering
- Procurement
- Site management
- Construction management
- Commissioning

Oil & Gas Capabilities

Services for LNG terminals:

- Project management
- QA/QC and HSE management
- RAM analysis
- De-bottlenecking
- Process
- EPCM
- Verification and Optimization
- Document control
- Floating solutions
- Modularization and skid design

Oil & Gas Capabilities

- Weight & Cost estimation
- Fabrication management and follow-up
- Project management
- Multi-discipline engineering covering all disciplines and project phases
- Feasibility, concept and FEED studies
- Civil services: geotechnical, infrastructure and foundations
- Pipe layout & design and calculation
- Structural design, support for LNG tank and foundation design
- EPCM services
- EPC or engineering of small scale storage and regasification units
- Pipe rack design and structural drawings.

Oil & Gas Capabilities

Pipeline Design Services:

- Feasibility
- FEED
- HAZOP
- Conceptual Design
- Material Selection
- Surge Analysis
- Hydraulic calculations
- Cathodic protection
- Alignment Sheet
- Stress Analysis
- Detail Engineering
- Site support

Oil & Gas Capabilities-Nigeria

(1) Bidding capabilities and experience

Over 20 years experience of bidding in Nigeria complex Oil & Gas plants, Office centers and FLB .

Maximum amount project bided and Completed :From 5M USD TO 300M USD

Following Successful Project bided , Mostly Executed and 5 Projects are under Progress,

- Total Elf-Obagi Flow station and FLB and Obite Gas plant
- AGIP- OB-OB Gas plant-New office complex
- AGIP- Agbara Offshore Platform-Renovation Job.
- Halliburton- New office Head quarter and Mechanical workshop, Electrical Lab and Instruments Lab
- Schlumberger-New office Head quarter and Mechanical workshop, Electrical Lab and Instruments Lab
- SPDC-Kolocreek- FLB bid and constructed.
- SPDC-CC-II- FLB bid and constructed
- SPDC-Okoloma Gas Plant Construction and local procurement Total cost USD 242 M

Oil & Gas Capabilities-Nigeria

- **NAOC –IDU Phase 2 EPC Work Completion & Flare Down for Idu Field Gas Development & Flow Station Revamping (*Location: Idu*)**
- **SPDC EPC for Field Logistics Base (FLB) Gbaran Ubie**
- **CENTURY ENERGY SERVICES LTD Fores Engineering - Supply of manpower and Equipment for Turn Around Maintenance at Okpoho well.**
- **SEPTA Energy Nigeria Limited UQUO Gas Plant (Central Processing Facility)Construction works (*Location: Uquo*)**
- **NLNG Relocation of U-3700 Propane and Butane Air Coolers to U-3300 Construction works (Location: Rivers State)**
- **SPDC Sea Eagle - Calibration of various relieve valves.(Location: Okpoho Well)**
- **SNEPCO Turn Around Maintenance, RV pop Test, Leak Test and rectification of valves**
- **SNEPCO- PWHT activities and valve revalidation and installations (Location: Bonga Offshore Platform)**
- **GLOBE STAR ENGINEERING COMPANY-PWHT services, including valve revalidation and installations (Location: MP platform)**

Oil & Gas Capabilities-Nigeria

- **SPDC-Facilities Procurement And Construction for Afam F5 Reservoir Development (Location: Afam, Rivers State)**
- **SPDC-Soku NAG Compression Facility Installation**
- **SPDC-Gbaran Security of Supply (SOS) Phase I**
- **SPDC-FYIP - Completion and Commissioning of FYIP CCP/CPF Gas Plant and North Bank Flow Station**
- **SPDC-Kolo Creek to Soku (K2S) Project, SOKU End Facilities**
- **NLNG-Engineering, Procurement, Construction & Commissioning for IA Workshop and Construction of External Building**
- **NLNG-Engineering, Procurement, Construction & Commissioning Works for IA Administration Building and new Learning Center**
- **NLNG-Engineering, Procurement, Construction & Commissioning of RA Type3 Apartment - Phase 1**
- **SIEMENS- Azura 459MW Open Cycle Gas Turbine Power Station Project**
- **METKA-AFAM III 8x25MW Mobile Turbine Upgrade (TM2500) Turnkey Project**
- **NLNG -EPC FOR EFFLUENT TREATMENT PLANTS UPGRADE PROJEC-UP**
- **SPDC-ESCRAVOS FLB PROJECT-JUST AWARDED**
- **SPDC-SOKU NAG2 – NEGOTIATION FINAL ONTRACT IS GOING ON.**

Experience- Oil & Gas-India and Nigeria

EXPERIENCE

Large experience of Indian market and especially civil, structural ,electrical , mechanical, CCTV, access control, HVAC, Instrumentation –Buildings Like Office and FLB,Road, Bridges, Water treatment plants, Sewage treatment plants and especially any kind of packaged equipment, skid mounted equipment for Oil and Gas Plants and Industrial FLB's .

Oil & Gas-India and Nigeria

(2)Engineering capabilities-Oil & Gas

Consolidated experience In India and Nigeria.

Advance Engineering Consultant (AEC) is a company engaged in consultancy in Civil ,Electrical ,Mechanical ,HVAC,Telecom and Instrumentation engineering. AEC was established in 1999 to develop consultancy services in India, Asia & Africa.

Oil & Gas Capabilities-Nigeria

(3) Procurement experience and capabilities.

- Served Alcon Nigeria Ltd. For about 20 years.
- Dealt with complex plants coordinating different India, South East Asia ,Middle East,China for SPDC,NAOC and NLNG approved vendors.
- Directly dealing with OEM's to provide the most technical suitable and competitive offers.

From 2007 to 2019 up to USD 94 Million -Materials procured for SPDC,NAOC AND NLNG

- Pipe,Pipe fittings-JSW,Mittal,Nippon,Sumitomo,Zhejiang Juili Hi-Tech Metal(Duplex and SS),MSL,SANDVIK,SGFL,BEBITZ,SHANXI, KOFKO,SKBEND,TK BEND,BOTHWELL,JIANGSHU,JIANGYIN
- NUTS&BOLTS,GASKETS-SENG HENG PTE LTD,SBN,UNIKINGER LTD

Oil & Gas Capabilities-Nigeria

- **Ball , Globe , Gate , Relief valve-**
HAVA,L&T,JCF,KITZ,FLowsERVE,TYCO,PENTAIR etc.
- **ELECTRICAL ITEMS INCLUDING SPECIAL CABLE**
ABB,SCHNEIDER,SIEMENS,PHILIPS,THORN,PRYSMIAN,FURSE
LEGRAND,B-LINE,EATON,ALSTHOM,CATERPILLAR,AEG,GUTOR,
EMERSON,INDO SUMI,ROXTEC,CMP ,3M,RAYCHEM etc.
- **INSTRUMENTATION /AUTOMATION ,CABLES AND ACCESSORIES**
EMERSON,YOKGAWA,SCHNEIDER,ABB,WIKA,DANIEL,PRYSMIAN,
INDOSUMI,MULTI INSTRUMENTS,ASHCROFT,FISHER,GE,
SWAGELOK,PAKER,HAWKE,MEDC,BAYI,ENDRESS HAUSER,
ROSEMOUNT,TK,WEIDMULLER,PEPPERAL+FUCH,EMERSON VALVE
ACCESSORIES(BETTIES),DRESSER(MASONEILAN)BRROKS,KROHN
HONEYWLL,TYCO,SIMPLEX
- **HVAC SYSTEM**
CARRIER,TRANE,YORK

Oil & Gas Capabilities-Nigeria

- **TELECOM –DATA,CATV,VOICE,CCTV,PAGA,FIDS
CISCO,KRONE,RITTAL,PRYSMIAN,INDOSUMI,PELCO BY
SCHNEIDER,ATLAS SOUND,BELDEN,ESCO,TYCO,TECHNOR
COMMSCOPE,APC,FIBRELAN,LEGRAND,WISI,BOSCH,SONY**
- **Air compressor skids
INGERSOL RAND,ATLAS COPCO**
- **Pump skids
ITT,FLOWERVE,GRUNDFOSS,LEWA, SPXFLOW etc.**
- **Gas screw compressor skids
DRESSER RAND, Enerflex , Mayekawa ,SIEMENS**
- **GAS METERING SKID AND CITY GATE SKID
EMERSON,CHEMTROL,CORRETECH,MPENGINEERING,NIRMAL
ENERGY**

Industrial Structure

Pre-Design & Design Services

- Site selection assistance
- Support for statutory permits & approvals
- Project Budgeting
- Development of Brief
- Master planning / site planning
- Geo technical investigation & site survey advise
- Architecture
- Structural design
- Proof checking / peer review of design

Industrial Structure (Pre-Design & Design Services continued)

- Plumbing design
- Site infrastructure design
- Electrical, lighting & ELV systems design
- HVAC design
- Fire protection design
- Mechanical utilities & piping design
- Building modeling & visualization
- Interior design

Industrial Structure (Continued)

Procurement & Cost Management Services

- Procurement strategy
- Preliminary & detailed cost estimating
- Bid/tender/inquiry documents
- Pre-qualification of bidders
- Bidding process management
- Bid scrutiny & assistance with award
- Advise on construction agreements
- Checking & certifying bills
- Independent cost audits

Industrial Structure (Continued)

Construction Phase Services

- Site staff hiring assistance / manpower augmentation
- Resident services – coordination with design office
- Contracts administration
- Construction Management
- Closure of contracts
- Facility management guidelines

Industrial Structure (Continued)

Pre Engineering Building (PEB)

- Finalizing layout of project along with column position and Complete GAD.
- Detail component wise material specification
- Applicable Codal provision for designing primary & secondary member.
- Loading consideration as per relevant standards and requirement.
- Design methodology
- Detail specification and quantity of various accessories, Painting, Surface preparation Etc.
- Detail design in Staad or MBS
- Submission of fabrication drawings.

Water / Sewage Treatment Plant

Water Distribution:

- Complete civil design with chemical dosage, mechanical design of pumps and pipe line sizing, including all components except electrical.

Major components

- Finished Water Storage
- Distribution System
- Water Pumping and Storage
- Bulk Water Station

Water / Sewage Treatment Plant (Continued)

Water Treatment Plant

- Design of filtration of water with respect to physical , chemical, microbiological properties of drinking water as per WHO Standards "Guidelines for drinking-water quality", considering Turbidity – Color – Odour – Taste – Temperature properties of water.

Water / Sewage Treatment Plant (WTP Continued)

Major component's (Design/Sizing & Drawing's)

- Raw Water Settling Pond
- Pre-Sedimentation
- Screening
- Coagulation (Coagulant tank, chemical specification and dosage)
- Aeration
- Flocculation
- Sedimentation (With and Without Coagulants)
- Filtration
- Disinfection/chlorination, lime dosing
- Softening
- Process Laboratory and testing
- Storage
- Distribution (Pumping and pipe line design with ESR, GSR & other storage methods)

Water / Sewage Treatment Plant (WTP Continued)

Detail design and drawings of additional filtration components which can be added as per requirement

- Primary treatment
- Maintaining PH and added flocculants and coagulation chemical
- Biology treatment
- Organic matter degrade with the help of aerobic bacteria
- Dual media filter
- Ultra filtration
- Calculation of MLSS,MLVSS , dissolve oxygen and chemical oxygen demand , biological oxygen demand of pretreated water and post treated water.

Water Supply

Details design of various components including

- Major and minor irrigation projects & command area development
- Aqueducts, syphons, canals and canal regulatory works
- Intake structures, tunnels, surge shafts, pen-stocks and power houses
- Engineering of barrages, major dams and irrigation tanks
- Lift irrigation schemes
- Water distribution systems
- Water resources consolidation
- Flood control
- Evaluation of the safety of dams

Water Supply (Continued)

- Modernization of canals
- Collection works, treatment works, transmission works, distribution works
- ESR & GSR (steel & RCC)
- Evaluation of various sources of water
- Detail design and sizing and layout of transmission and distribution pipe line along with civil components.
- Sizing and type of pumps, valves and other mechanical component along with technical specification.

Repair and Rehabilitation

- Inspection and survey of existing structure
- Conducting tests (Destructive and NDT)
- Rehabilitation studies
- Restoration studies
- Strengthening schemes suggestion, comparison, procedure for execution.
- Restoration schemes suggestion, comparison, procedure for execution.
- Residual life estimation

Diaphragm Wall

Detail Design & Drawings

Introduction

- Diaphragm Wall is generally reinforced concrete wall constructed in the ground using Under slurry technique which was developed in Europe.
- The technique involves excavating a narrow trench that is kept full of an engineered fluid of slurry.
- Walls of thickness between 300 and 1200 mm can be formed in this way up to a depths of 45 meters.

Diaphragm Wall (Continued)

Diaphragm wall Application

- Commonly used in congested areas.
- Can be Installed in close proximity to existing structure.
- Practically suited for deep basements.
- Used in conjunction with “Top Down” construction technique.
- Positive facades of Diaphragm Wall
- Can be Installed to considerable depth.
- Formation of walls with substantial thickness.
- Flexible system in plan layout.
- Easily incorporated into Permanent works.
- Design able to carry vertical loads.

Diaphragm Wall (Diaphragm wall Application Continued)

- Construction time of Basement can be lowered considerably.
- Economic and Positive solution for large deep basement in saturated and unstable soil profiles.
- Can be used for seepage control in Dams.
- Noise levels limited to engine noise only.
- No vibration during installation.

Construction Sequence of Diaphragm wall

- Fixing of Alignment
- Stage-2: Guide wall Construction
- Stage-3: Trenching
- Stage-4: Trench Cleaning

Diaphragm Wall (Construction Sequence of Diaphragm wall)

- Stage-5: Stop ends fixing
- Stage-6: Reinforcement Cage lowering
- Stage-7: Placing of Concrete
- Stage-8: Withdrawal of Stop ends

Roads, Highways, Expressway

- Survey
- Soil Investigation
- Alignment and Highway geometric s (Road intersection, interchanges, drain)
- Major and Minor bridge detail design and drawings.
- Pipe Culvert, Box Culvert, VUP etc.
- Carriage way design (Paved/RCC)

Building Design

Detail Design and Drawings

- RCC framed structure
- Flat slab
- PT slab
- Load bearing masonry structure, (Reinforced, Un-reinforced structure) IS: 1905
- Maximum 4 Storey for Un-reinforced masonry structure excluding basement

Port & Harbor

- Ports and harbors
- Mooring and berthing structures
- Jetties and break waters
- Ship lifts, slipways and dry docks
- Offshore yards
- Container handling
- LPG / LNG / pol / dry bulk / crude oil terminals
- Rehabilitation of marine structures

Airport & Aviation

- Design of Framed RCC Structure, Space Frame, Steel Structure for Passenger and Cargo Terminals.
- Airfield Pavements (Rigid and Flexible).
- Air Traffic Control (ATC) Tower.
- Planning and design of airport services and utilities.
- Evaluation of Pavements using Non-destructive Methods of Testing.
- Project Management / Construction Supervision.
- Design of airstrip, Taxiway, apron and pavement as per ASTHO.
- Complete drainage system with Hydrology Study including drain culvert, Box Culvert.

Railway

Detail Design & Drawings:

- Box pushing for underpass below railway track.
- Design of railway bridge/ROB as per IRS and RDSO specification.
- Gauge conversion of existing meter gauge to broad gauge.
- Gauge conversion rating of existing bridges and strengthening of the existing bridges for gauge conversion
- Design of Platform, Steel Structure, RCC framed structure Etc.

Transmission /Telecommunication

Transmission Tower:

- Tower Design & Drawings With following bracing system
 - Single web system
 - Double web or Warren system
 - Pratt system
 - Portal system
- Designs of important tower accessories like Hanger, Step bolt, Strain plate; U-bolt and D-shackle
- Shop drawings.
- Civil Foundation Design
- Test Beds

Transmission /Telecommunication_(Cont)

Telecommunication:

- Tower Design & Drawings With following bracing system
 - K-Bracing,
 - XBX Bracing,
 - V Bracing
 - W-bracing
 - XX bracing
- Design based on wind and dynamic load
- Shop drawings.
- Civil Foundation Design
- Test Beds

Riverfront

- Preparation of General Arrangement Drawings and General layout plans
- Design of High Embankments & Foundation
- Structural Design of Various Components
- Working Drawings for all Components.
- Preparation of Bill of Quantities (BOQ)
- Design Hydrology & Hydraulics
- Periodic Site Supervision During Construction

Formwork

Detail design & Drawings of Formwork along with methodology.

Formwork design & code's adopted

- ACI 347-R 2014- Guide to formwork for concrete.
- ACI SP-4 (R14)- Formwork for concrete.
- BS 5975 2008: 2011 - British Standards Code practice for formwork
- CAN/CSA - S269.3 (R 2008) - Canadian standard on formwork
- AS3610 & SAA 1509 - 2010 - Australian standards for Formwork
- EN12812 – European Standard on performance requirement and general design.

Formwork (Formwork design & code's adopted continued)

- IS - 14687 – 1999 (Reaffirmed 2005) , Indian Standard - False work for Concrete Structures
- IRC 87 - 2011 - Guidelines on formwork, false work and temporary structures.

Detail design & Drawings consideration

- Types of finish
- Anchorages, form ties, braces spacing and tying of diagonal bracings.
- Requirement of opening for vibrator
- Construction joints, expansion joints details
- Camber or adjusted elevations to compensate deflections

Formwork (Detail design & Drawings consideration continued)

- Bottom precast sill under shores for heavy loading
- Formwork release agents
- Any special patterns or grooves requirement as per Architectural finish requirement.
- Supporting members for permanent Shuttering along with the formwork
- Essential provision for specialized construction techniques such as taking the boom placer, crane to be taken along with the self climbing equipment
- Embedded parts, openings, any MEP works requirements
- Water barrier ties for water retaining structures

Formwork (Continued)

Methodology & Construction sequence Includes

- Method of placing of concrete- Pump, crane bucket etc.,
- DE shuttering time, in case of Post tensioned time for De-shuttering
- Rate of concrete pouring
- Pour sequence
- Sequence to concrete placement. and when formwork can be removed.
- Sequence of form removal, back propping, re propping etc.,
- Methodology for proper deflection/release / loosening of supports for shell / dome structures
- Sequence of de-shuttering for providing proper stress pattern in the structure

Hydraulic gates

Detail Design & Drawing with Mechanical Parts with Following Components

Type of Gates

- Vertical lift gates
- Radial gates

Embedded parts, guides and supports

- Slots and niches
- Wheel track
- Slide tracks
- Concrete bearing pressure

Hydraulic gates (Embedded parts, guides and supports continued)

- Wheels and pins
- Gate hinges and bearings
- Bearings
- Cylindrical bushings
- Spherical plain bearing
- Roller bearings

Gate hoists

- Screw lifts
- Wire ropes
- Roller chains
- Oil hydraulic drives
- Gate hoist arrangement
- Hand operation

Gate seals

Steel Detailing

Shop Drawings in Tekla

Bridges & Flyover

Detail Design & Drawing For following Bridges Types including Sub structure and Super structure.

- T Beam Deck Slab
- Prestressed Concrete Bridges.
- Railway Over Bridge (ROB)
- Solid Slab
- Cable Stay Bridge
- Steel Plate Girder Bridge's For railway.
- Segmental Bridges

Industrial Heavy Foundation

Detail design and drawings of complete machine-foundation system, ultra heavy and important structures/machines (Rotary /Reciprocating /Impact machines).

Detail design based on following parameters

- Dynamic forces (Internally generated forces by the machine itself/ externally applied forces)
- Foundation Eccentricity
- Dynamic soil parameters.,
- Soil Mass Participation
- Effect of Embedment
- Soil Damping
- Elastic Modulus
- Uncertainties Associated with Machine Parameters
- Vibration isolation system
- Earthquake effect

Tendering Services/DPR

We offer unmatched Tendering/DPR service For infrastructure Project

Major Objectives Fulfilled

- Determining costing of the project
- Detail technical specification (Component Wise) ascertain the quality of work, (optional)
- Floating tender
- Bid evaluation

Tendering Services/DPR (Continued)

Major Highlights

A. Quantity and Rate.

- Primary design of each component for extracting sizing, Quantity/BOQ of Major component of the project.
- Rate analysis of Non-standard items.
- Adjacent site survey for material procurement, which needs to be procured locally
- Suppliers list along with quotation for materials, which needs to be sourced locally to minimize lead-time and lead distance.
- Detail BOQ (Model/Specification) along with components wise rates.
- 3 to 5 Quotation for major items.

Tendering Services/DPR (Continued)

B. Quality specification

- Providing detail technical specification of major items along with relevant local or International standards as applicable.
- Vendor list of prominent vendors for major items.

C. Safety standards

- Local Safety standards and legislative bodies associated for the same.

D. Time management for project

- Histograms and similar plans for tools and material.
- Histogram for man power.
- Man hour calculation.

E. Tendering

- Drafting tenders as per relevant standard & Final Bid evaluation

Lighting Design

Lighting Design (General)

- Day and Night View of luminary
- Selection of luminaire and its source of light, Point's of consideration
 - Cost of luminaire & bulbs,
 - efficiency in terms of electricity consumption,
 - life cycle of luminaire, maintained,
 - protection IP and Atex based,
 - dimmer based etc.
- Selection of Lighting color
- Fixing Location of fittings, (Height, Position)

Lighting Design (Lighting Design (General) continued)

- Lux level calculation based on IS or BS standard, Point's of consideration (Openings in buildings, color of wall, materials of construction of room/outdoor periphery, Color of Glass of windows, light absorption coefficient of various material, Available day light, Refractive index etc.)
- Provision of Emergency lighting with inbuilt battery, generator/UPS backup etc. along with auto switching automation, Provision of minimum lux level according to Codal provisions.
- Smart scheduling or smart sensors
- Automation with the help of motion sensors, photo - voltaic sensors, Proximity sensor, IR Based system, or light management system.
- Centralized management system for lights

Lighting Design (Lighting Design (General) continued)

- Light programming with DMX

Benefits of Automation/Centralized Management System.

- Lower electricity bills
- Fewer repairs and decreased maintenance costs
- Greater efficiency of equipment
- Require fewer personnel to manage building
- Increase occupant satisfaction and safety
- Gain competitive advantage
- Increase asset value
- Modernize buildings
- A mere 5%-15% of the equipment cost, Savings of up to 30%

Lighting Design (Benefits of Automation/Centralized MS Continued)

- on operational costs from electricity bills alone
- Additional savings from reduced manpower requirements and fewer equipment repair costs.
- Also increases asset life, providing indirect value
- Return on Investment in 2-3 years for a building with a projected life of 20 years

Scope During various Stage's of Projects

Conceptual Design

- concept sketches, illustrations, presentation, conceptual lighting renderings and schematic drawings.

Design Documentation

- Lighting drawings, Lighting specification and dimming control schedule, Lighting calculation, LEED requirements and overall design coordination.

Lighting Design (Scope continued)

Design Documentation

- Lighting drawings, Lighting specification and dimming control schedule, Lighting calculation, LEED requirements and overall design coordination.

Construction Documentation

- finalizing the lighting drawings and specification along with dimming control schedule, developing lighting details, coordination with other consultants, Value Engineering, answering RFIs.

Construction Administration

- Periodic site coordination, Coordination with other services, quality control of design implementation, final aiming and setting light levels, issuing a punch list to project team, Post occupancy evaluation.

HVAC Design-CHILLER,VRF,SPLIT AND OTHERS

- Calculations and Drawings
- The contractor shall submit complete heat load calculations by using either Carrier heat load calculation Hourly Analysis Program or HEVACOMP; detail design drawings and documents for approval before commencing the job.
- The design drawings shall consist of but not limited to:
 - Equipment drawing.
 - Detail drawings and sections.
 - Equipment lay-out drawings.
 - Fresh air supply schematics.
 - Extract air schematics.
 - Fresh air supply ducting.
 - Extract air ducting.

HVAC Design-CHILLER,VRF,SPLIT AND OTHERS

- Controls drawings.
- Site plan
- Applicable Standards
- DEP 31.76.10.10 Gen Heating. Ventilation and Air Conditioning for plant buildings.
- ASHREA standard 62.1 ventilation for acceptable Indoor Air Quality.
- ASHRAE 90.1 efficiency requirements for VRF systems.
- All wiring shall be in accordance with the National Electrical Code (N.E.C.).
- Efficiency shall be published in accordance with the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Standards 340/360, 1230 and ISO Standard 13256-1

HVAC Design-CHILLER,VRF,SPLIT AND OTHERS

- ENGINEERING
- COOLING LOAD DESIGN
- The building cooling load design shall be done using Hourly Analysis Program design software (HAP) by
- considering the building space input data, weather Input data etc.
- Contractor shall provide details of design report listed below:
- Space Design Load Summary
- Air System Sizing Summary
- Air System Design Load Summary
- Ventilation Sizing Summary
- Zone Sizing Summary
- Zone Design Load Summary
- Hourly Air System Design Load
- System Psychrometric
- Equipment Selection Data Sheets

HVAC Design-CHILLER,VRF,SPLIT AND OTHERS

- Applicable codes and standards
- BS 5970: Thermal Insulation of Pipework and Equipment (In the Temperature Range –100 Degrees Celsius to +870 Degrees Celsius).
- NFPA Code 90A: Installation of Air Conditioning
- NFPA Code 90B: Installation of Air-Conditioning System
- All insulating materials shall comply with the requirement of BS 5422 & BS 5970. All insulating materials shall be non-combustible
- ANSI/ASHRAE 15-1992, Safety code for mechanical refrigeration
- 2nd ed. ACCA ANSI/ACCA Manual S; Residential Equipment Selection
- ASHRAE ANSI/ASHRAE 130-2008; Methods of Testing Air Terminal Units
- AHRI 550/590-2003; Chilled water Package Unit with Vapour Compression Cycle
- ASHRAE 62_1_2016 Ventilation Standard
- NFPA 72 Fire Protection for HVAC system
- ASHRAE 62.1-2013 Ventilation for Acceptable Indoor Air Quality
- ASHRAE ANSI/ASHRAE 111-2008 Measurement, Testing, Adjusting, and Balancing of Building
- HVAC Systems

CCTV

2D and 3D design

- Finding the best camera locations.
- Calculating precise camera lens focal length , viewing angles and pixel density (PPM/PPF).
- identification, recognition, observation, detection and monitoring zones of each camera on site plan.
- Minimize dead zones to increase the security level of premises using 2D and 3D modeling.
- Getting estimations of required network bandwidth and calculating the required HDD storage space for video archives.
- Complete GAD with Camera arrangement and cable layout up to VMS, VMS Rack positioning.

CCTV (2D & 3D Design continued)

- Complete BOQ of items.

Selection of CCTV camera based on

- Analog or IP Based
- Indoor or outdoor
- Type : Dome/ bullet box
- Nigh vision/IR
- Lenses
- Fixed or PTZ
- Ex-proof, Anti Vandal Camera
- Resolution

CCTV

(Selection of CCTV camera continued)

- IP Protection, Low light performance and optical zoom capability
- Cost
- wide dynamic range of light (WDR)

Video management system with following features (VMS)

- Motion detection (Recording during motion detection only)
- Distributed processing (single management interface allowing clients to access camera sources across all servers,)
- Audio (two-way audio recording)
- Alarm I/O (Alarm outputs to activate ancillary equipment such as lighting, alert message via email, cellphone SMS, or over the Internet to a client's application or mobile phone app.)

CCTV (VMS Continued)

- Pan tilt zoom control (ability to remotely control pan-tilt-zoom (PTZ) cameras only, can be remotely rotated, titled, and zoomed, a single camera to monitor a very large area with detailed views of specific areas of interest.)
- Hybrid analog / digital recording in single system
- Fisheye dewarping
- Single recorded stream, multiple views (show multiple camera views from a single recorded stream)

IT Security Service

Voice Solution	Data Solution	Intruder or Burglar alarm	Audio-Video Solutions	Communication Accessories	Video Door Phone	Fire Alarm System	Access Control, Time Attd System
EPABX	Multi Function Fax Machine	Multit Zone Control Panel	Audio Amplifier	Basic Phone	Black & White Video Door Phone	Multi Zone Control Panel	Face-Finger Print Reader
Key Telephone system	LAN Switch	Motion Detector	Audio & Video conference Setup	CLI Phone	Color LCD Video Door Phone	Smoke Detector	RF-ID Reader
Multi Line Phone	Router	Magnetic Contact	LED Monitor	Cordless Phone	Society security System	Heat Detector	EM Lock
IP-PBX	Patch Panel	IR Beam DetectorSwitch	Ceiling Speaker	IP Trunk Gateway		Emergency Panic Switch	RF-ID Card
Feature Phone	I/O	Gas Leak Detector	Color Laser Projector	Operator Soft Console		Temperature Variation Detector	Smart Card
Walkie-Talkie	Server & Networking Rack	Panic Switch	Micro Phone	Head Set			Drop Bolt Lock
		Vibration Detector under		GSM FCT Router			Exit Switch
		Glass Break Detector		Call Management System			Boom Barrier
		Sounder		Call Center Application Setup			Attendance & Visitor Management Software

Resources (Software)

AEC has all necessary software necessary for delivering JOB'S ON TIME, We can submit output based on following list of software for prof checking as and when required by client.

We see that our personals get training for latest versions and updates of software for their respective fields,

A. Structural Design

- Stadd Pro
- ETABS
- MBS
- SAP2000
- SAFE
- ESR GSR
- In House Developed Macro based Spreadsheets
- In House Developed Design software based on MS DOS & c and c++

Resources (Software) (Continued)

B. Program for River Training works/ Hydraulics

- HEC RAS,
- ARC MAP,
- MIKE10,
- OASYS

C. Alignment

- Road MX
- Esurvey

D. Drafting

- Tekla structure
- Auto-cad
- Geo Tool
- In House Developed Auto-lips drafting programs

Resources (Software) (Continued)

E. Lighting Design

- Dialux

F. Electrical

- E-Plan

G. PMC

- Ms Project

F. List of Some Prominent Software Developed by us

- Program for geometric designs of highway elements.
- Program for RCC single circular pier & pier cap with open foundation
- Program for RCC wall type pier, pier cap with open foundation
- Program for design of group of piles and pile cap
- Program for design of elastomeric bearings
- Program for design of no of circular piers by frame analysis
- Program for design of box culverts

Resources (Software)(Continued)

- Program for stability analysis for mass concrete abutment
- Program for stability analysis for mass concrete pier
- Program for stability analysis for mass concrete wing wall & return wall
- Program for design of continuous RCC beams.
- Program for design of RCC column & footing.
- Program for structural design, drawings and estimates for buildings and cross drainage structures.
- Program for preparation of Bills of Quantities from basic data.
- Program for Rate Analysis.

Clients

IMPORTANT CLIENTS



Clients

IMPORTANT CLIENTS

 **GSPC GROUP**



Vestas



Gujarat Industrial Development Corporation
A Government of Gujarat Undertaking



ANUPAM

Clients



**Mumbai Metropolitan Region
Development Authority**

Thank You

India Office (Registered)

Advance Engineering Consultant
601 - 604, 6th floor, Abhishekh Building,
Opp Hotel Haveli, Sector :11,
Gandhinagar : 382011, Gujarat.
India

UAE Office (Registered)

Advance Engineering Consultant FZ LLC
Creative City, The fujairah Media Free Zone
Phone :+971 58 253 5412

Phone: +91 9601017900/+91 8200169877

Tel/Fax : +91 79 232 43608

Email : digant_parikh@yahoo.com

digant.parikh25@gmail.com

Working Hours

Mon - Fri: 9am - 6pm

Saturday: 9am - 6pm (Except 2nd & 4th Saturday)