الربيعة
للإستشارات الهندسية
Alrabiah
Consulting Engineers

ISO
QSCert
9001

Mechanical & Electrical Capability Statement

Revision No. 01-23

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Mechanical & Electrical Capability Statement

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- RIYADH
- JEDDAH
- JUBAIL
- YANBU

ISO QSCert 9001

Revision No. 01-23

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1. Summary

Alrabiah Consulting Engineers (ARE) was established in 1988 as a professional engineering firm in Dammam, Saudi Arabia. The company operates as a 100% Saudi consulting firm.

Alrabiah Consulting Engineers has shown steady growth through careful marketing and selective tendering of projects best suited to the range of services offered. “ARE” is able to offer Clients the full range of services and fields of expertise in general engineering works. These services range from the early planning and conceptual development through detailed design and analysis, preparation of contractual documents, appraisal of costs, to construction supervision and quality assurance.

Drawing on our substantial experience spanning a range of building, marine, airport, civil engineering projects and bridge structures and implementing this in the development of project specifications, combined with supervision of site activities, we aim to deliver the highest standards of service in the fields of civil and electro-mechanical engineering to a wide and varied client base here in Saudi Arabia.

Besides the above main services, the Company has forayed into specialized fields such as Value Engineering, Project Cost Analysis, Contract Administration, Arbitration, Claims Preparation and Risk Assessment & Analysis.

ARE is a leader in the field of structural investigation and rehabilitation, the core business on which the Company in Saudi Arabia was originally founded. We aim to provide our clients with a service of real value, providing solutions that will provide our clients very significant cost savings, especially in the longer term.

ARE is also successful in Project Management having undertaken many assignments including new build and complicated rehabilitation projects. ARE’s list of completed projects includes clients in the Private, Semi-government and Government sectors covering structures for Domestic, Commercial, Education, Retail, Defence, Leisure, Industrial/Petrochemical, Health and Transportation.

2. Alrabiah's General Capabilities

"ARE" has developed a wealth of experience and expertise throughout a range of engineering fields. For any given project, a suitable team of specialists can be assembled to ensure the necessary experience and particular expertise is available for the collection, analysis and presentation of relevant data. "ARE" offers comprehensive services in a wide range of engineering activities including:

- Detailed Design of Buildings & Infrastructure
- Structural Assessment and Rehabilitation
- Project Management and Supervision
- Design Review and Service Lift Study
- Traffic and Transportation Studies
- Risk/HAZOP/RAM/BRA, etc. Studies

"ARE"'s head office and regional offices employ specialist engineers covering most engineering disciplines.

"ARE" is a leader in the field of structural investigation and rehabilitation. It aims to provide its clients with a service of real value, and providing solutions that will help its clients gain very significant cost savings, especially in the longer term.

3. Mechanical and Electrical Capability

3.1 Mechanical Engineering Services

Our experience in the field of mechanical engineering involves the design, integration, co-ordination and supervision of building services engineering design including:

Mechanical Services

- Main piping and station piping system
- Hydraulic design and Surge analysis
- Hot and cold water supply systems
- Heating, Ventilation and Air Conditioning systems
- Fuel supplies and storage
- Drainage systems
- Sanitary and storm water drainage system

Fire Fighting Systems

- Automatic sprinklers system
- Fire pumps system
- Hose reels
- Fire hydrants
- Foam and powder installations
- Gaseous installations
- Smoke ventilation and pressurization
- Fire detection and alarm systems

The Engineering Design Services generally involve:

- Obtaining the Client's brief and integrate with other Consultants and specialist Contractors/Suppliers
- Preliminary information in terms of advice, sketch drawings, reports and outline specifications
- Budget cost advice
- Provide full cost reporting if required
- Provide schedules of power, heating and cooling loads as necessary
- Provide calculations to verify final design proposals
- Produce schematic drawings, layout and detailed design drawings, specifications and tender documentation
- Advise and undertake tender actions including selection of tenderers
- Analyze tender submissions and advise on the selection of contractors and suppliers
- Examine installation drawings, fabrication drawings and builders work details
- Advise on the requirement for site staff
- Attendance at the relevant co-ordination meetings, site progress meetings and site visits
- Advise on valuations and variations
- Witness performance testing and commissioning
- Inspect works and record any defects
- Comment on the accuracy and completeness of record drawings, operating instructions and maintenance manuals
- Investigates complaints associated with construction trade activities and communicates action/proposed action to necessary agencies, and affected parties.
- Resolves problems associated with field inspection activities.
- Assists with Plan Review problem resolution
- Evaluation of existing Mechanical, Fire Fighting, HVAC and Plumbing systems, as well as long range master plans
- Site surveys
- Feasibility studies

3.2 Electrical & Automation Engineering Services

We have a full-fledged Electrical & Instrumentation Department employing highly qualified professional engineers rich in experience almost in all fields of Electrical & Instrumentation Engineering including writing of Specification, FEED and Detailed designing, testing and commissioning, inspection, Project management. We also render excellent services for site supervision with strict quality control and maintain project schedule strictly resulting in completion of projects in time.

We offer the following engineering services:

- Sizing and protection of electrical equipment.
- Selection of devices for protection of electrical equipment including Relay Setting and Co-ordination.
- Medium and low voltage power distribution system.
- Cabling, grounding and outdoor lighting.
- Uninterruptible Power System Design.
- Design of Interior and Exterior Lighting System including lighting layouts and illumination level calculations.
- Inspection of control panels, Relay Panels and Switchgear.
- Preparation of control Schematics and Interconnection wiring diagrams.
- Selection, sizing and routing of cables including voltage drop calculations.
- Fire alarm system integration.
- Telephone, intercom, paging and closed circuit television system.
- Evaluation of Tenders.
- Control and communication systems.
- Field and Tank instrumentation.
- Station controls and automation.
- Cathodic protection.

4. Appendices for Project References

4.1 ARE Projects References

Alrabiah Project Experience

Project Name	Yanbu 2 Power and Water Project - Fuel Facilities "Design Services"
Client	Marafiq and Saudi Aramco
Location	Yanbu
Year	2011-2012
Project Value	SR 3,666,000

Alrabiah was in design progress the new ALCO pipeline to be connected to ALCO storage tanks for the supply of fuel located at Marafiq STG Units 5 & 6 Project and also to provide ALCO pipeline to Yanbu 2 Power & Water Project Facilities.

The design objective was to define and outline the requirements of a new pipeline to provide a reliable transfer of ALCO from Yanbu Crude Oil Terminal to MARAFIQ Power Plant Madinat Yanbu Al-Sinaiyah (MYAS) Area and Yanbu 2 Power and Water Project Fuel Facilities. The Design and the selection of materials and facility was made in order to ensure that the Work has low maintenance and running costs. In order to achieve the above requirements, the following were considered:

- *Redundancy of equipment to allow for breakdown and/or during maintenance shutdown.*
- *Capacity and rating of pipeline and equipment to meet peak flow and operating pressure and temperature. Achieving high efficiency for operation point of the metering system. Corrosion protection systems. Provision of two pumps and two suction strainers (One operating and one standby).*
- *Engineering design to Install 20 inch ALCO piping starting with hot tap tie-in on existing 48 inch export pipeline at YCOT. This tie-in is located south side of existing SAMREF metering skid and west side of the dike of T-9 Tank.*
- *Engineering design to install metering inlet block valve to provide emergency isolation from the main fuel pipeline to the metering skid as required in SAES-Y-103. Basket Strainer unit will be incorporated in this skid.*
- *Additional pipeline branch connection and nozzles at the pumping station and metering station shall be considered for a potential future connection which may be provided under future expansion and modification project.*

Alrabiah Project Experience

Project Name	Install Hydrogen & Nitrogen Lines Between Buildings, "Design Services"
Client	Saudi Aramco
Location	R&D Center - Dhahran
Year	2011
Project Value	SR 183,897

The Research & Development 'R&D' Center in Dhahran had a series of world class engineering and science laboratories which carry out basic research for the development of Saudi Aramco Oil and Gas related projects and so the new project must be of the highest quality and result in minimum visual impact.

The objective of this project was to install Hydrogen and a Nitrogen Line flow 5m3/hr (177ft3/hr) and 10 m3/hr (353 ft3/hr) respectively designed for 250 barg (3,625 psig) to suit the maximum operating pressure of 200 barg (2,900 psig). The lines shall run 178 m from building 2297 to building 2291. This line had a cold pipe spec that can withstand auto refrigeration in the unlikely event of accidental rupture.

Alrabiah Project Experience

Project Name	Evaluation of closed drains system "Design Services"
Client	Saudi Aramco
Location	Riyadh Refinery
Year	2010
Project Value	SR 171,263

The RIYADH refinery was designed to process Arabian light and Khurais light crude oils. The 124,000 barrels per stream day hydro cracking refinery produces LPG, Gasoline, Jet fuel, Kerosene, Diesel and Asphalt.

The process pressure sewer system at Riyadh Refinery did not properly and neither do the MPS pumps Z02-G-0101 A/B. There were reported problems of vibration occurring in the main 8" PPS header and also hydrate formation.

The sour water stripping facilities at Riyadh Refinery are undersized and consequently the wash water flow rates are lower than the licensor recommendations. There are also several other sour water sources that are currently routed to the OWS that need to be sent to the sour water stripping system.

The objective of the engineering services for the consultant were to prepare a study report which includes :

- *Hydraulic study of the PPS system to account for draining vessels during T&I, two phase flow and hydrate formation. Provide recommendations and drawing mark ups.*
- *Provide drawing mark ups for new connections to the PPS and sample points.*
- *Resize the MPS pumps Z02-G0101 A/B for liquids to be pumped to the slops tanks instead of the desalters. Provide document mark ups.*
- *Provide new connections to the sour water system and make recommendations to increase the sour water stripping capacity;*
- *Provide allowance for new sour water tank as existing sour water tank Z41-D-0352 is due for a six month maintenance overhaul.*

Alrabiah Project Experience

Project Name	To Add Warm Up Line for Asphalt Pump in Tank Farm "Design Services"
Client	Saudi Aramco
Location	Riyadh Refinery
Year	2011
Project Value	SR 109,365

Earlier, there were no warm up lines for Asphalt Pumps R945 P26, P25, P27, P28, 29A/B, P24A/B, P22 and P23 in Tank farm at Riyadh Refinery.

The purpose of this project to do piping modification to the Asphalt pumps in the Tank farm Area was to install a 1 ½" warm up line as specified by proponent.

The work to be performed by the Consultant shall include but not limited to the following:

To install 1 ½" line outlet of pumps in area R945.
Gate and Globe valve to be installed at each warm up line respectively.

Alrabiah Project Experience

Project Name	Construction of two LPG meters with two meter run "Design Services"
Client	Saudi Aramco
Location	Riyadh Refinery
Year	2011
Project Value	SR 219,940

Riyadh Refinery had one LPG metering and proving system which supplies LPG to GASCO.
The existing meter was positive displacement type with local indication and totalizer. Presently meter proving was done manually.

The purpose of this project was to provide a spare meter in case of existing meter malfunction or shut down for maintenance. Project Objectives were as follows.

- *Objective of this project was to construct LPG meter Skid with two meter runs and Prover at Z41- Tank Farm, Riyadh refinery.*
- *civil foundations for Metering Skid.*
- *Inlet and outline pipe lines to connect new metering skid with current LPG export System.*
- *Piping to carry skid filter drains to an open system.*
- *Piping to carry skid PZV's discharge to a closed system.*

Alrabiah Project Experience

Project Name	Replacement of CS Raw Water Piping with RTR "Design Services"
Client	Saudi Aramco
Location	Khursaniyah Gas Plant, Utility Area
Year	2011
Project Value	SR 830,799

This project covers raw water lines of Plant No. K86 Khursaniyah Gas Plant, Utility Area. Raw water carbon steel piping systems (internally FBE coated pipes) experienced corrosion at the flanges and weld joints that caused high iron content and consequently affected the RO membranes performance.

The total project is divided into two phases:

1. *Phase- I: Replacing the carbon steel piping from the downstream of ZV-0192 up to the upstream of the RO Membrane Units.*
2. *Phase- II: Replacing the carbon steel piping from the battery limit at KPF of raw water from UER Reservoir up to the upsteam of the ZV-0192. This raw water piping consists of two(2) 20" internally FBE coated carbon steel pipe lines (20"-K43-RW-15505-3LEOP and 20"-K43-RW-15506-3LEOP, two(2) 14" internally FBE coated carbon steel pipe lines (14"-K86-RW-04001-3LEOP and 14"-K86-RW-04372-3LEOP).*

Alrabiah Consulting Engineers ("ARE") evaluated by designing the piping systems and it was recommended to use non-metallic material inplace of carbon steel for pipes. Hence all carbon steel piping system was to be replaced by new RTR Epoxy material "ARE" had designed the multi discipline engineering services for demolition to construction of new RTR piping for both Phases.

Alrabiah Project Experience

Project Name	Eliminate All Single Points of Failure "Design Services"
Client	Saudi Aramco
Location	Riyadh Refinery
Year	2010
Project Value	SR 175,751

21 single points of failure were identified in Utility Area of Riyadh Refinery which are critical components of the plant that would cause a total system/unit failure in case of a malfunction occurrence.

Following were the plants location listed for Utility Area, Riyadh Refinery.

1. *Plant No. Z49 New Deaerators*
2. *Plant No. Z41 Area-31Emergency Isolation Valves, Tank farm*
3. *Plant No. Z43 Control Rooms*

Alrabiah Consulting Engineers designed multi discipline engineering services and provided soltuions to eliminate all 21 single points of failure for DCS, ESD, Instrumentation and Power for Utility Area.

The following were the Proposed few Solutions for the single point of failures.

1. *Install parallel DC power source (charger).*
2. *Connect each compressor local control panel to different power feed.*
3. *Eliminate this EIV and install a new fail-open EIV instead to avoid Utility trip in case this EIV has failure and closed.*
4. *Install redundant level Control valve instead of bypass valve and control remotely from the DCS.*
5. *Install redundant Pressure Control valve instead of bypass valve and control remotely from the DCS. Install Control valve and check valve. ARC was not reliable and it has been stuck at open position many times which lead to loss of steam as a result of the steam producers trip unless the operator reaches at the right time and isolate the valve manually. Eliminate this single source by separate power source and take it from another DP.*

Alrabiah Project Experience

Project Name	Reviving the closed TEG drain system "Design Services"
Client	Saudi Aramco
Location	Qatif GOSP
Year	2011
Project Value	SR 179,125

The old TEG Drain Tank at the Qatif North Gas Gathering Plant was inadequate and should be modified and was the subject of a Northern Area Technical Support Department report for Job # 13448 and was still required to be commissioned to accept Lean and Rich TEG Relief Streams.
The SOW lists how the existing drum should be modified.
Alrabiah had designed the drum with a vent above the pipe rack, re-designed pump for a reduced flow rate of 3.75 m3/hr (16.5 USGPM), an installed spare pump with suction strainer and rating for Cold TEG at 2 deg.C, drum pressure and measurement of the TEG liquid temperature (and deletion of N2 based option B). Operations had confirmed that SS pipe spec 1SD0P was acceptable.
Produced Sour Gas from Qatif GOSP-1 Gas Gathering Plant has the following Gas Processing operations

The project covers the following :

1. *Install level instruments to indicate and provide signal to facilitate draining and recovery of the accumulated TEG from TEG Drain Tank.*
2. *Provide overpressure protection by installation of relief valve on the underground TEG drain tank routed to a safe location, as per SAES standards.*
3. *Provide pumping and / or vacuum truck connection to recover TEG and pump it back into the TEG process.*

Alrabiah Project Experience

Project Name	Restoration of Fire Protection System at Jeddah Islamic Port, Yanbu Industrial Port, Dammam Commercial Port and Dhuba Port "Investigation"
Client	Saudi Ports Authority
Location	Dhuba
Year	2004
Project Value	SR 1,200,000

"ARE" had been appointed by the Saudi Ports Authority to investigate and re-design all Electro-Mechanical installations pertaining to the Fire Protection Systems (FPS) comprising Fire Fighting Systems and Fire Alarm System at the Ports in Jeddah, Yanbu, Dhuba and Dammam.

ARP also provided recommendations for rehabilitation of FPS with an estimated budget cost and all necessary drawings for the remedial/reinstatement works.

Alrabiah Project Experience

Project Name	Upgrading Sewage System in Jubail Commercial Port "Study, Design & Supervision"
Client	Saudi Ports Authority
Location	Jubail
Year	2007
Project Value	SR 1,877,000

Alrabiah Consulting Engineers Co. were appointed to carry out the study, design and supervision of a comprehensive Sewage system in the Jubail Commercial Port.

The works involved investigation of the existing facilities, and preparation of design for up gradation and renovation of the existing sewage system, including preparation of tender documents, supervision of the execution of the up gradation works by the Contractor, as well as the supervision during the maintenance period.

Alrabiah Project Experience

Project Name	Upgrade LPG Metering System at Riyadh Refinery "Design Services"
Client	Saudi Aramco
Location	Riyadh
Year	2010
Project Value	SR 219,940

Riyadh Refinery had one LPG metering and proving system which supplies LPG to GASCO. The old meter was positive displacement type with local indication and totalizer. Earlier meter proving was done manually.

Objective of this project was to construct LPG meter Skid with two meter runs and Prover at Z41- Tank Farm, Riyadh refinery.

The work includes engineering for civil foundations for Metering Skid, Construct inlet and outline pipe lines to connect new metering skid with current LPG export System, Construct piping to carry skid filter drains to an open system Construct piping to carry skid PZV's discharge to a closed system and complete instrumentation control for the metering station.

Alrabiah Project Experience

Project Name	Replace the Two Tanks(V29-173A/B) & Enhance the Level Display & Control of the Diesel Tanks (V29-T-171 & V29-T-173 A/B) "Design Services"
Client	Saudi Aramco
Location	Yanbu
Year	2010
Project Value	SR 151,172

The objective of this project was for the preparation of a detailed design and CAT-1 cost estimate to replace the two tanks (V29-T-173 A/B) and enhance the level display and control of the diesel tanks (V29-T-171 and V29-T-173 A/B).

Briefly summarized by the following engineering tasks which includes piping, mechanical, electrical and automation works.

- *Remove Diesel Day Tanks (V29-T-173 A/B) and replace with two new Diesel Day Tanks and use existing supports as routing of new lines is same as previous.*
- *Replace the existing high level switches with new ones and install new Level transmitters and provide alarms at operator console in the control room.*
- *The local alarms for TK-171 level high/low were energized by generating digital outputs from the DCS.*
- *To improve the level control of TK-171, TK-173 A/B, new solenoid valves were installed on the inlets, which were controlled by level switch high and level transmitter.*
- *New junction boxes installed as the existing JBs did not had capacity for new instruments.*

Alrabiah Project Experience

Project Name	Install Clay Filter at Dhahran Tank Farm "Design Services"
Client	Saudi Aramco
Location	Dhahran
Year	2010
Project Value	SR 286,967

A new Filtration and Chemical Injection system were installed to respectively improve the conductivity of Kerosene and produce on-spec Jet A-1 which involved multi discipline engineering.

- *Install new 2 x 50% Micron filters, Clay Filters and Water Coalescers in combination as required to respectively remove rust / dirt, surfactants and water.*
- *Piping jumpovers provided from the discharge of W51-G-101A/B to the filters and from the filters to the new RTDB-2 header.*
- *A new chemical injection package installed complete with tanks, additive injector hydraulic turbine, chemical drum transfer pump system and corrosion inhibitor injection pump.*
- *1.2.5 The space for the chemical injection system was currently occupied by W51-G-101C which was demolish and removed as Operations confirm that it was not required.*

Alrabiah Project Experience

Project Name	Installing Sample Point Check Valve and Isolation Valve "Design Services"
Client	Saudi Aramco
Location	Riyadh Refinery
Year	2010
Project Value	SR 286,967

Objective of this project was to install a sample point on tempered cooling water line (6"-TCW-20060-A1F1) in jacket cooling water system of Z12-C2, install a check valve in steam condensate line (6"-SC-20005-A1A1) downstream of LIC-0510 and upstream of condensate branch Z12-V201 wash water vessel and install isolation valve on suction lines (3"-LO-20181-K1L1) of gear oil pumps Z12-C2 A/B/C-P2 in Z12-Isomax Unit-2, Riyadh refinery which involves multi discipline engineering for the following tasks.

Install a sample point on tempered cooling water line (6"-TCW-20060-A1F1) in jacket cooling water system of Z12-C2. Install a check valve in steam condensate line (6"-SC-20005-A1A1) downstream of LIC-0510 and upstream of condensate branch Z12-V201 wash water vessel. Install isolation valve on suction lines (3"-LO-20174-K1L1, 3"-LO-20181-K1L1, 3"-LO-20188-K1L1) of gear oil pumps Z12-C2 A/B/C-P2.

Alrabiah Project Experience

Project Name	Design for Installation of Drain Lines & Isolation Valves RR "Design Services"
Client	Saudi Aramco
Location	Riyadh
Year	2010
Project Value	SR 38,824

Objective of this project was to install a funnel with cap on condensate line (1"-SC-23316-A1A1) with isolation valve on R801-V9 and connect the outlet line of R801-V9 through a sight glass in Z76-LSR Merox Unit-2, Riyadh refinery.

The multi discipline engineering work includes with the following tasks.

- *Install a funnel with cap and isolation valve on steam condensate line (1"-SC-23316-A1A1).*
-
- *Connect the outlet line of R801-V9 starting from nozzle flange with 1"-CA-18002-A1A1 and 1"-CA-18002-A1A1 and install a sight flow glass, check valve and isolation valve & route the drain line to nearby funnel.*

Alrabiah Project Experience

Project Name	Expansion of LFO 30 & 34 – KAUST "Design Services"
Client	KAUST
Location	THUWAL
Year	2013
Project Value	SR 7,26,224

Detailed design to develop and provide a complete Architectural and Engineering Design Drawings for the "Expansion of LFO 30 & 34"

Alrabiah Project Experience

Project Name	SWCC Shuqaiq (2), Water Transmission System "Site Supervision"
Client	ILF, Riyadh
Location	Shuqaiq - KSA
Year	2007
Project Value	SR 700 Million

"ARE" was appointed to supervise the laying of the pipelines from Shuqaiq Desalination plants to various small villages. The works mainly involve checking whether the execution on site is undertaken as per the contract documents. The activities include preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc.

Alrabiah Project Experience

Project Name	*Pipe Lines for Water Supply in the Regions of Al-Oula in Madinah Al-Munawwarah "Site Supervision"*
Client	*Ministry of Water & Electricity*
Location	*Madinah Munawawarah - KSA*
Year	*2009 - Ongoing*
Project Value	*SR 520 Million*

The Ministry of Water & Electricity appointed "ARE" to provide Construction management services for the supervision of the laying of pipe lines from Al-Oula town (about 300 km North of Madinah Munawwarah) to various villages between Al-Oula & Madinah Munawwarah. The works mainly involved supervising whether the execution on site is undertaken as per the project contract documents. The activities included preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc. The works also include all disciplines viz. civil, mechanical, piping, landscaping, plumbing, surveying, electrical utilities, etc.

Alrabiah Project Experience

Project Name	*Pipe Lines for Irrigation Facilities and Storm Water Drainage Systems "Site Supervision"*
Client	*Ministry of Agriculture*
Location	*Al Hassa - KSA*
Year	*2010 - 2014*
Project Value	*SR 150 Million*

The Ministry of Agriculture in Hassa appointed "ARE" to provide Construction management services for the supervision of the laying of pipe lines within the city of Hassa town (about 200 km North of Dammam). The works mainly involve supervising whether the execution on site is undertaken as per the project contract documents. The activities include preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc. The works also include all disciplines viz. civil, mechanical, piping, plumbing, surveying, electrical utilities, etc.

Alrabiah Project Experience

Project Name	*Installation of Halon Gas System in KFIP "Site Supervision"*
Client	*Saudi Ports Authority*
Location	*Yanbu- KSA*
Year	*2012*
Project Value	*SR 352,000*

"ARE" was appointed to carry out the supervision of the installation of Halon Gas System in the King Fahd Industrial Port, Yanbu. The works mainly involve checking whether the execution on site is undertaken as per the project contract documents. The activities included preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc.

PIPING SYSTEMS

Waste Water Piping, Dammam - KSA

Conversion of Open Irrigation Channels into Pipelines, Al Hassa - KSA

Khursaniyah Gas Plant, Jubail - KSA

MECHANICAL UTILITIES

GPYW Sports Complex, Al – Hassa - KSA

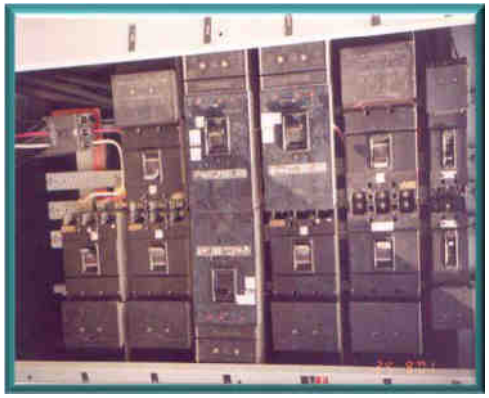
King Fahd Naval Base, Jubail - KSA

Sub – Station, Jeddah - KSA

Jeddah Islamic Port - KSA

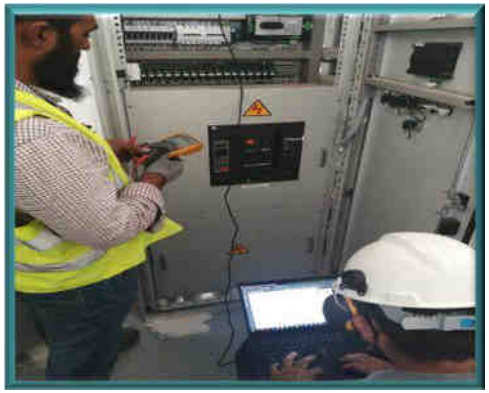
ELECTRICAL & ELECTRONICS UTILITIES

Security System PTZ Camera for Yanbu Commercial Port, Yanbu - KSA



King Faisal Naval Base, Jubail - KSA

Security Lighting System for Yanbu Commercial Port, Yanbu - KSA



Various projects of MEWA, Madinah - KSA

Alrabiah Project Experience

Project Name	AKWA High School for teaching industrial trades in Douala, Republic of Cameroon " Design and Supervision"
Client	Ministry of Secondary Education, Republic of Cameroon
Location	Douala, Republic of Cameroon
Year	2022 – Ongoing
Project Value	SR 1.7 Million

The Republic of Cameroon has obtained funds from the Saudi Fund for Development (SDF) to finance the project. For the Architectural and Technical Studies as well as the Construction Management of the project to build and equip government high school, AKWA, for the teaching of industrial trades in the city of Douala in Cameroon. The consultancy services include the following:

1. Development of details studies which covers Topographic studies, Architectural Studies, Geotechnical studies, execution plan and preparation of estimates.

2. Preparation of tender documents.

3. Control of the execution of works for Construction Management / Supervision.

Alrabiah Project Experience

Project Name	"Project Management Services" for HOP and Community Facilities
Client	SATORP
Location	Jubail
Year	2022 (Extended) - Ongoing
Project Value	OPEN

Saudi ARAMCO Total Refinery Co. Ltd. (SATORP) awarded "ARE" a 'PMS' contract extension to provide project management services during the design & construction of House Ownership Program and Community Building in their facility in Jubail. The works mainly involve checking the performance of design documents by the design consultant, and supervise the execution works by the construction contractor on site. The project has a potential to form a team of more than twenty engineers including Project Manager, Contracts Manager, Building Management Specialist, Sr. Scheduler, Sr. Material Engineer, etc. The works also include all disciplines viz. civil, architectural, landscaping, interior design, plumbing, sanitary, HVAC, FFS, FAS, electrical, etc.

Alrabiah Project Experience

Project Name	Architectural & Technical Studies and Monitoring of Works for the Extension of the University of Bangui (Central African Republic) " Design and Supervision"
Client	Ministry of Economy (CAR)
Location	Bangui, Central African Rep.
Year	2020 – Ongoing
Project Value	SR 3 Million

The Central African Republic has obtained funds from the Saudi Fund for Development (SDF) to finance the project. The project is the construction of two (2) blocks capable of accommodating 600 students each, a new university residence and a boundary wall. The consultancy services include detailed design of all disciplines, and construction management/supervision.

Alrabiah Project Experience

Project Name	Architectural & Technical Studies and Monitoring of Works for the Rehabilitation of the Marie Jeanne CARON High School in Bangui (Central African Republic) " Design and Supervision"
Client	Ministry of Economy (CAR)
Location	Bangui, Central African Rep.
Year	2020 – Ongoing
Project Value	SR 1.077 Million

The Central African Republic with funds from the Saudi Development Fund (SDF) to finance the Project. The project is rehabilitation of two main buildings and their equipment to accommodate 3,000 students, and construction of a perimeter wall. The consultancy services include detailed design of all disciplines, and construction management/supervision.

Alrabiah Project Experience

Project Name	Construction and Equipment of a Polyclinic Hospital with 250 beds in Central African Republic " Design and Supervision"
Client	Ministry of Economy (CAR)
Location	Bangui, Central African Rep.
Year	2020 – Ongoing
Project Value	SR 2.975 Million

The Central African Republic has obtained funds from the Saudi Development Fund (SDF) to finance the Project. The project is construction and equipping of a 250-bed Polyclinic Hospital. The consultancy services include detailed design of all disciplines, and construction management/supervision.

Alrabiah Project Experience

Project Name	Saudi – Yemen Border in Khadra - Residential, Administrative and other Infrastructure facilities " Design and Supervision"
Client	Ministry of Finance, Riyadh
Location	Khadra
Year	2012 – Ongoing
Project Value	SR 700 Million

The Ministry of Finance appointed "ARE" to do the comprehensive design of the various different facilities to be built in Khadra (Saudi - Yemen Border) area for the MOF staff. The buildings comprised of various facilities for staff, administration, housing compound, office facilities, customs building, border checking facilities, security systems, etc. The work involved development of the client's conceptual design to working drawings, planning issues, and preparation of tender documents for construction. "ARE" is also involved in tender assessment and also supervision of the structures that are being designed for execution..

Alrabiah Project Experience

Project Name	Ministry of Finance Saudi Qatar Border in Odaid - Facilities, "Design and Supervision"
Client	Ministry of Finance, Riyadh
Location	Odaid
Year	2012
Project Value	SR 650 Million

The Ministry of Finance appointed "ARE" to do the comprehensive design of the various different facilities to be built in Odaid area for the MOF staff.

The buildings comprised of various facilities for staff, administration, housing compound, office facilities, customs building, border checking facilities, security systems, etc. The work involved development of the client's conceptual design to working drawings, planning issues, and preparation of tender documents for construction. "ARE" was also involved in tender assessment and also supervision of the structures that are being designed for execution.

Alrabiah Project Experience

Project Name	Engineering Services Contract for 3 years "General Engineering Services"
Client	ARAMCO Gulf Operations Co. (AGOC), Khafji
Location	Khafji
Year	2012
Project Value	SR 4 Million

The ARAMCO Gulf Operations Co. (AGOC), appointed "ARE" to provide general engineering services for the comprehensive design of the various buildings, bridges, roads, facilities, infrastructure to be built in Khafji. The works involve development of the client's conceptual design to working drawings, planning issues, and preparation of tender documents for construction. The works also include all disciplines viz. civil, architectural, landscaping, interior design, plumbing, sanitary, HVAC, roads, FFS, FAS, electrical, etc.

Alrabiah Project Experience

Project Name	School in Jalmudah Phase 2, 4 Buildings for Boys & Girls Secondary & Intermediate School "Design Services"
Client	Royal Commission
Location	Jubail Industrial City
Year	2009 - 2010
Project Value	SR 3,573,375

The Contract consisted of procurement and construction of four (4) schools in Jalmudah, Jubail Industrial City.
The four (4) buildings consisted of the following: Boys Intermediate School Girls Intermediate School Boys Secondary School Girls Secondary School The design of the school buildings is generally patterned from the existing school buildings in Jalmudah with some minor modifications as required by the Education Department. The intermediate schools for boys and girls had almost identical building' area, however the lot area for the Boys Intermediate School is bigger than the Girls' Intermediate School due to the provision of outdoor sports facilities. Similarly, the secondary schools for boys and girls had almost identical building area but with bigger lot area for the boys school. The main scope of this Contract was the construction of four (4) single storey buildings with varying building area and lot sizes, complete with perimeter fence, guard houses, parking area and access roads. All sites were to be developed by filling, compaction and grading to the required elevations. The buildings were composed of cast-in-place reinforced concrete with pre-cast concrete as external claddings. Internal partitions are generally concrete masonry units.

All buildings were provided with services such as potable water supply, sewage, storm water drainage system, power and lighting, telecommunication, CATV, CCTV, LAN, public address, HVAC, fire detection and fire protection system and building management system. Outdoor sports facilities were provided in the boys schools. The buildings were to be furnished with the required furniture and should be ready for use by the Education Department upon completion of the Contract.

Alrabiah Project Experience

Project Name	King Abdullah Project for Waad Al-Shamaal City Development "General Engineering Services"
Client	Ma'aden
Location	Ras Al Khair
Year	2013 – Ongoing
Project Value	SR 2 Million

The Saudi Mining Co. (Ma'aden), appointed "ARE" to provide general engineering services for the comprehensive design of the various housing and infrastructure facilities including bridges, roads, facilities, infrastructure to be built in Ras Al-Khair. The works involved development of the client's conceptual design to working drawings, planning issues, and preparation of tender documents for construction. The works also included all disciplines viz. civil, architectural, landscaping, interior design, plumbing, sanitary, HVAC, roads, FFS, FAS, electrical, etc.

Alrabiah Project Experience

Project Name	AlFozan Autism Center "Design & Supervision"
Client	Fozan Al Fozan
Location	Al Khobar - KSA
Year	2015
Project Value	SR 2.35 Million

Al Fozan appointed "ARE" to prepare IFC design package for the construction of the Autism Center Building, in Khobar. Later appointed "ARE" to provide supervision services also for the construction of Autism Center in Khobar

The building comprised of various facilities for staff, administration, children's hostel facilities (boys & girls), halls, training facilities, etc. The work involved detailed design and preparation of IFC package to invite potential bidders for the construction of the facility. The works included all disciplines viz. civil, landscaping, plumbing, sanitary, HVAC, FFS, FAS, electrical, etc.

For Supervision, The works mainly involved checking whether the execution on site is undertaken as per the project contract documents. The activities include inspection of all activities on site, approval of materials, etc. The project is being executed by a team of engineers including all disciplines viz. civil, architectural, mechanical, electrical, etc.

Alrabiah Project Experience

Project Name	IC Bldg 1010 Replacement "Design Services"
Client	KAUST, Thuwal
Location	Thuwal
Year	2013
Project Value	SR 1,640,000

KAUST appointed "ARE" to IFP design package for the IC building 1010, to be built within the university premises.

The building comprised of various facilities for staff, administration, etc. The work involved modification of the existing IFC design to IFP design package. The works included all disciplines viz. civil, architectural, landscaping, interior design, plumbing, sanitary, HVAC, FFS, FAS, electrical, etc.

Alrabiah Project Experience

Project Name	New College of Medicine – 3 Buildings "Design Services"
Client	Ministry of Higher Education
Location	Al Hassa
Year	2002
Project Value	SR 1.6 Million

King Faisal University appointed Alrabiah Consulting Engineers to design the College of Medicine in Al-Hassa, which comprised of three (3) double storey buildings viz. the Male Students building, the Female Students building and the Central building with a total constructed area of approximately 12,000 m2.

The Central building houses all the laboratories, dissection halls and museums while the Male and Female student buildings house the teaching facilities and faculty offices. The design was based on the space requirements of the college incorporating the specific functional aspects especially the complete segregation of male and female students in all aspects of Medical Education.

The buildings were designed to incorporate Pre-cast Concrete Construction Technology to gain construction time and Quality Control.

Alrabiah Project Experience

Project Name	Kindergartens & Schools in Jalmudah, Phase 5 (4 Buildings) "Design Services"
Client	Royal Commission
Location	Jubail Industrial City
Year	2010 - 2011
Project Value	SR 1,551,779

The main scope of this Contract was the construction of two (2) Kindergartens, one (1) Girl's Secondary School and one (1) Girl's Elementary School. The Kindergarten (A4-9) had a lot area of approximately 3,964 square meters while the Kindergarten (A4-10) hasda lot area of approximately 4,324 square meters. Each Kindergarten had a building area of 1,025 square meters. The Girl's Elementary School had a lot area of approximately 26,085 square meters while the Girl's Secondary School had a lot area of about 30,129 square meters. The Girl's Elementary School had a building area of 6,792 square meters while the Girl's Secondary School had a building area of about 10,597 square meters. Both schools were provided with a shaded courtyard and a multi-purpose hall. The buildings were designed with robust roof, floor, slab-on-grade, walls, framing, and finishes, which shall maximize form, function, economy, ease and speed in construction, availability of materials and labour, thermal insulation, sound attenuation, fire resistance and energy efficiency. The floor plans and Site layouts maximized area available. Material and building elements were selected to enable and facilitate rapid construction.

The Kindergartens and School buildings were provided with services such as potable water supply, sewage, storm water drainage system, power and lighting, telecommunication, CATV, CCTV, LAN, public address, HVAC, fire detection and fire protection system and building management system. The buildings were to be furnished with the required furniture and should be ready for use by the Education Department upon completion of the Contract.

Alrabiah Project Experience

Project Name	New Sales Office & Showroom in Riyadh "Design Services"
Client	Grundfos
Location	Riyadh
Year	1998
Project Value	SR 1.3 Million

Grundfos appointed Alrabiah Consulting Engineers to do the comprehensive design of the new showroom in Riyadh.

The building comprised of showroom and offices with training facilities. The work involved development of the Client's conceptual design to working drawings, planning issues, tender and project management of the construction phase.

Later, ARE was also appointed by Grundfos to perform the project management during the construction works.

Alrabiah Project Experience

Project Name	*City Plant Nursery & Medical Warehouse "Design Services"*
Client	*Royal Commission*
Location	*Jubail Industrial City*
Year	*2010*
Project Value	*SR 1,259,351*

The scope of work for this task release was to complete a detailed engineering design and prepare a full RFP package for Contract : "P&C of City Plant Nursery & Medical Warehouse" as per the Contract requirements, including: site utilities infrastructure, hardscaping, fit-for-purpose building design, site canopies, both fixed and portable building furniture layout and supply, building equipment and all items and elements incidental or otherwise to such a development. The primary irrigation mains for the City Plant Nursery site were part of the site utilities infrastructure of this task.

Alrabiah Project Experience

Project Name	Two Kindergarten Schools in Jalmudah, Phase 7 "Design Services"
Client	Royal Commission
Location	Jubail Industrial City
Year	2012
Project Value	SR 974,563

The main scope of this Contract was the construction of two (2) Kindergarten Schools. Each school had different lot areas but have the same building area of 1,529 square meters. The first Kindergarten School (A1-5, Lot 771) had a lot area of 4,278 square meters and the second Kindergarten School (A3-10, Lot 309) had a lot area of 4,670 square meters. Each school was provided with offices, typical classrooms, play areas and a Multi-Purpose Hall. The buildings were designed with robust roofs, floors, slab-on-grade, walls, framing, and finishes, which shall maximize form, function, economy, ease and speed in construction, availability of materials and labour, thermal insulation, sound attenuation, fire resistance and energy efficiency. The floor plans and Site layouts maximized the area available. Material and building elements were selected to enable and facilitate rapid construction.

The Kindergarten buildings were provided with services such as potable water supply, sewage, storm water drainage system, power and lighting, telecommunication system (public address, audio visual, LAN/WLAN, voice/telephone, CCTV, IPTV, clock and bell, access control and intrusion detection), HVAC, fire detection and fire protection system. The buildings were furnished with the required furniture and were ready for use by the Education Department upon completion of the Contract.

Alrabiah Project Experience

Project Name	Administrative Custom building at Jubail Commercial Port "Study & Design"
Client	Ministry of Finance (Custom Department)
Location	Jubail
Year	2014
Project Value	SR 964, 109.00

The Building composed of Utility & Service/ Parking Area. The building area was 5000 Sq. m. With 2 Floors (G.F + 1st + 2nd).

The building were provided with all building services such as drinking water supply, sewage, storm water drainage system, power and lighting, telecommunication, CCTV, LAN, Public Address, HVAC, fire detection, fire alarm and fire protection systems, inclusive of the parking and access roads.

Alrabiah Project Experience

Project Name	New Clinics in Al Farouq, Al Huwaylat & Jalmudah "Design Services"
Client	Royal Commission
Location	Jubail
Year	2007 - 2009
Project Value	SR 955,961

The main scope of work was the construction and furnishing of three new clinics with a gross area approximately 2,200 square meters for each building in Al-Farouq, Al-Huwaylat and Jalmudah Districts furniture included. The HVAC units had a fixed on the roof deck of the buildings. Parking area was provided within the site location of each building accommodated the vehicles of the staff and visitors. The structure of the new buildings were cast-in-place reinforced concrete foundations, grade beams, grade slabs, columns, roof beams and slabs. External walls consisted of pre-cast concrete. Internal partition walls were dry wall partition and concrete masonry unit block work plastered and painted, together with a roofing system. The construction of clinic building in Al-Farouq district included soil consolidation by pre-loading with surcharge materials of the entire building footprint and the installation of "tile drain system".

The building were provided with all building services such as drinking water supply, sewage, storm water drainage system, power and lighting, telecommunication, CATV, LAN, Public Address, HVAC, fire detection, fire alarm and fire protection systems, inclusive of the parking and access roads. The HVAC of the building was water chiller type designed independently. The voltage system in the building was 220/127V, 3 phase 4-wire and 60Hz.

Project Name	*Seawater Pump House - Study for Assessment of Steel Structure of Building # 10 SWPH - Yanbu*
Client	*MARAFIQ - Yanbu*
Location	*Yanbu - KSA*
Year	*2017*
Project Value	*SR . 780,000*

"ARE" was appointed by Marafiq, Yanbu to investigate the existing PEB in SWPH, Yanbu. The elements inspected were steel columns, beams supporting crane rails, etc.

The work involved visual inspection, structural design check of the beams supporting the rails, and dimensional survey. Calculations were carried out to assess the adequacy of the structure according to the international standards. The scope was mainly to check the original design and advice what structural strengthening measures are needed for the crane load to be increased from existing 35T to 40T. The scope also included preparation of tender documents for the necessary strengthening of the structure.

Alrabiah Project Experience

Project Name	Wellness Fitness Center "Design Services"
Client	Saudi Aramco
Location	Udhailiyah
Year	2011
Project Value	SR 735,496

The scope of work for this project was to prepare a Detailed Design Package for the new facility. The proposed site basically a baseball field had an approximate area of 6725sqm. The Detailed Design package were prepared together with relevant drawings and documents, applicable Saudi Aramco Standard Drawings and Saudi Aramco Engineering Standards.
The location for the wellness fitness center was in Udhailiyah Residence Area, South.
The purpose of this project was to provide engineering and drafting services for the preparation of detailed design package for the new facility.
The work included the following major activities:

- *Demolition, dismantling, of existing structure, bleacher, player shed, walkway, lights pool or as defined in the demolition plan*
- *The scope of work together with drawings and documents listed on drawing control and applicable Saudi Aramco codes and standards constituted the basis for the construction of new community wellness fitness center at Udhailiyah, Saudi Arabia.*

The main spaces of the above mentioned building were: Construction of swimming pool, spa and supporting services, Construction of exercise hall and supporting services, Construction of steam room and sauna room, Construction of reception area, shower, toilets, lockers and other facilities of wellness fitness center, Design supply and installation of pre-engineered structural steel open web truss roof framing of Swimming Pool and Gymnasium roof, Supply and installation of water proofing membrane above the pre-engineered structural steel roof framing of Swimming Pool and Gymnasium roof.

Alrabiah Project Experience

Project Name	Expansion of LFO 30 & 34 located in bldg., 05, level 3 area 6 "Design Services"
Client	Saudi Aramco
Location	Thuwal
Year	2013
Project Value	SR 726,224

This scope of work was to provide construction modification for the "Expansion of LFO 30 &34".
KAUST to modified the existing Laboratory Fit-Out Packages nos. 30 & 34 in the Al-Kindi Building East (so called building no. 5) within its campus at Thuwal / KSA.
Both laboratories plan for increased capacities based on allocation of number of five (5) new fume hoods (LFO 30), and two (2) fume hoods and new glove box (LFO 34). The complete project site floor area of LFO 30 & 34 is 722 sqm,

The design had considered the constructability, health & safety and environmental issues, security and efficiency of project execution. "ARE" worked in close relationship and Coordination with KAUST responsible departments when allowed for full compatibility of the project with existing layout, existing design guidelines, health / safety & environmental requirements and existing utilities and building services infrastructure and fire protection. Access to the site, handling of construction material, management of waste and debris, noise levels, vibrations and access of future contractor personnel, operations and maintenance crew were addressed during construction.
Works were executed as per the IFC package, detailing the lab modifications required for all casework to function properly.

The construction works included Architectural/Civil, HVAC, Mechanical, Electrical, Plumbing, IT, Fire Alarm and Fire Suppressant services for the "to be" installed equipment (casework fume hoods, etc.) for a fully operational Lab.

Alrabiah Project Experience

Project Name	18th Floor of Admin Building, Security Gate and Workshop in Jeddah Islamic Port "Design Services"
Client	Saudi Ports Authority – Jeddah Islamic Port
Location	Jeddah
Year	2007
Project Value	SR 695,000

Saudi Ports Authority - Jeddah Islamic Port appointed "ARE" to carry out relevant studies, survey, structural analysis, and detailed design, related to the renovation of the 18th floor administration building, security gates and workshop in Jeddah Islamic Port on the Western Coast of KSA in Jeddah. Works involved data collection, detailed design and preparation of tender documents related to the Architectural, Interior Designing, Civil, Electrical, HVAC, Plumbing, Security System, etc. works.

Alrabiah Project Experience

Project Name	Administration O and M Center "Design Services"
Client	Royal Commission
Location	Jubail Industrial City
Year	2007
Project Value	SR 652,010

The main Scope of Work was the construction of a two storey building with a future third storey that served as the Administration O & M Center with a gross area of approximately 1,970 square meters. A chiller yard for the HVAC requirements was provided outside the building. The parking area was provided within the site location of the building and shall accommodate the vehicles of the staff and visitors. Perimeter fence with steel gate and security guard house shall also be provided. The structure of the new building was composed of cast-in-place reinforced cement concrete foundations, grade beams, grade slabs, columns, roof beams and slabs. External walls were be single insulated concrete masonry units. Internal partition walls were drywall partition and concrete masonry unit block-work plastered and painted, together with ceiling system.

The building were provided with all building services such as potable water supply, sewage, storm water drainage system, power and lighting, telecommunication, CATV, LAN, Public Address, HVAC, fire detection, fire alarm and fire protection systems, inclusive of the parking and access road. The voltage system in the building was 220/127V, phase 4-wire and 60Hz. The building was designed on the premise that another floor will be constructed in the future.

Alrabiah Project Experience

Project Name	RC Social and Cultural Center "Design Services"
Client	Royal Commission
Location	Jubail Industrial City
Year	2008
Project Value	SR 561,826

The main scope of work in the Construction of Social and Cultural Center comprised of the following structures and facilities;
Clubhouse serves as the Main Building had an approximate built area of 2,262 square meters without veranda. Ten (10) Rentable chalets divided into: Studio type comprising of Two (2) units with approximate built area of 97 square meters without veranda per unit. Two (2) Bedroom Type comprising of Eight (8) units with an approximate built area of 144 square meters without veranda per unit. Parking shall be provided within the site location of the buildings and shall accommodate the vehicles for the visitors. Work includes site grading, roadway, irrigation for landscaping, storm drainage, and other utilities under site development. The primary structure of the new buildings were composed of cast-in-place (c.i.p.) concrete foundations (footings, pedestals, grade beams, and walls);
c.i.p. concrete superstructures of columns and beams; and prestressed concrete hollow-core planks with c.i.p. composite concrete topping for framed roof slabs. Exterior walls were two (2) wythes of reinforced/grouted concrete masonry units (c.m.u.) with rigid insulation between the wythes as per the AE Drawings. Internal partition was c.m.u. as per the AE Drawings. Exterior masonry wall and interior masonry partition openings are framed with c.i.p. concrete lintels. Civil/site-type structures as per the SE and CE Drawings were, c.i.p. and stone retaining walls, boundary walls, cyclone fencing, lift station, manholes and chambers, car park shades, stairs, sidewalks and ramps.
The buildings had potable water, sewage, storm water drainage, power and lighting, telecommunication, CATV, LAN, Public Address, HVAC, fire detection and fire protection systems, inclusive of the parking and access road. The Air-Conditioning systems of all the buildings were composed of package type to A/C units. The Electrical power supply of all the buildings were 220/127V, 3 phase, 4-wire and 60 Hz.

Alrabiah Project Experience

Project Name	Explosive Nullifying Building (4 Buildings) "Design Services"
Client	Royal Commission
Location	Jubail Industrial City
Year	2012
Project Value	SR 514,362

This project was part for the provision of support services to RC during design, bidding and construction. Various DCNs and TQs are assigned by RC and worked on by Alrabiah.

This project consist of 4 Buildings such as:

- *Vehicle & Equipment Building*
- *Mussalla*
- *K- 9 Building*
- *Service & Operation Building*

The facilities provided were potable water supply, sewage, storm water drainage system, power and lighting, telecommunication system (public address, audio visual, LAN/WLAN, voice/telephone, CCTV, IPTV, clock and bell, access control and intrusion detection), HVAC, fire detection and fire protection system. The K- 9 building was furnished with the required furniture and was made ready for use by the Education Department upon completion of the Contract

Alrabiah Project Experience

Project Name	KAUST INN 2 RENOVATION (25 Suites to 75 Single Bedroom Guest Units) "Design Services"
Client	Saudi Aramco
Location	Thuwal
Year	2012
Project Value	SR 505,508

The "KAUST Inn 2" consisted of 25 Suites. The scope was to renovate "KAUST Inn 2" apartments to provide 75 single bedroom guest units.

This scope of work included renovation works for general, architectural, civil, plumbing, HVAC, Electrical, IT with the following: A semi circular reception desk on the waiting/lobby area, reception desk counter details, luggage storage room with storage rack, Provide housekeeping room with sink, water supply and floor drains adjacent to the luggage storage room, a new janitor room with sink, water supply and floor drains under the main stairs, manager's office, reservation office with counters, staff room, staff office, laundry collection area, staff toilet and common toilet, 1hr fire rated insulated hollow core metal escape door at each end of the corridor, ceiling materials including suspension system on common areas, offices and residential units, 150mm CMU wall to service ducts/shafts and new unit partitions with 100mm thick ordinary gypsum board fixed on 63mm studs. New gypsum board fixed on metal studs on outer side for new toilets, gypsum board wall cladding fixed on 63mm metal studs on existing precast toilet partitions, floor finishing materials on lobby, common areas, offices, and service areas, floor finishing materials on residential unit areas, bedroom closets and mini-bar cabinets on every residential unit, and all other fixtures required.

Alrabiah Project Experience

Project Name	Facility Inspector Office at Sea Island 2 "Design Services"
Client	Saudi Aramco
Location	Ras Tanura
Year	2011
Project Value	SR 487,454

The Facility Inspector of Sea Island was using a temporary office at the existing lab room located at lower level of the deck as the previous office was converted to UPS equipment room, a new office located at the existing location of the portable cabin used as a prayer room. A new prayer room on top of the new office.

"ARE" provided engineering and drafting services for the preparation of Detailed Design package to construct the following at Sea Island #2: Facility Inspector Office, A new steel structure office of (5.1 X 6.5 meters) to accommodate two people. The office was located on top of the control/equipment room.

Prayer Room: A new steel structure room of (3.6 X 2.5 meters) used for praying located on top of the new office.
A new steel structure room of (3.6 X 2.5 meters) used for praying and to be located on top of the new office.

The following studies were completed:
- *Building Risk Assessment to identify the safety precautions to be considered for the occupants.*
- *HVAC system and air pressurization.*

ARE prepared a project summary and write-up to describe all related work to be executed on the project.
The work included the collection and analysis of all data, preparation of detailed design, scope of work, development of the required various disciplines, calculations, design drawings, hydrotest diagram, MTO and cost estimate.

Alrabiah Project Experience

Project Name	Building # 3182 Offices & Shop Floor Area Renovation "Design Services"
Client	Saudi Aramco
Location	Dhahran
Year	2011-2012
Project Value	SR 475,805

The existing T & ESD Facility was an L- Shaped building comprising a three storey office building with workshop wing to the north-east and south-east. The first and second floors of the office building contain a number of enclosed offices and other staff facilities whilst the third floor accommodates the HVAC plant. The main office building is linked to each of the workshops at first floor level.

The following were the main tasks to be carried-out under this project: Create open plan office area at First & Second Floor Levels, Refurbished existing toilets at First and Second Floor Level_. The existing Female toilets are to be removed to make way for an additional office, All existing 'enclosed offices' located at perimeter of the second floor which are to remain will also be renovated, The existing sloped floor in the Workshop area was leveled, Reflected false ceiling, Furniture Layout, Flooring and Wall finishes, Fixtures (Electrical, Plumbing, HVAC & Telecommunication)

The work included the furnishing of all labor, materials, supervision, tools, equipment, technical and professional services and temporary support works necessary for completion of the project in accordance with all the terms and conditions of the Contract including all specifications and drawings.

"ARE" was responsible for performing a condition survey of all existing facilities.

Alrabiah Project Experience

Project Name	Buildings in Arafat for Ministry of Interior "Design Services"
Client	Ministry of Interior, Riyadh
Location	Various Location
Year	2007
Project Value	SR 470,000

The Ministry of Interior appointed "ARE" to do the comprehensive design of the various different facilities to be built in Arafat camp for the MOI staff.

The buildings comprised of various facilities for staff, administration, mess, etc. The work involved development of the client's conceptual design to working drawings, planning issues, and preparation of tender documents for construction.

Alrabiah Project Experience

Project Name	Turaif Bulk Plant Admin & Maintenance Buildings Ext. "Design Services"
Client	Saudi Aramco
Location	Turaif
Year	2011
Project Value	SR 459,283

The scope of work for this project was to prepare a Detailed Design Package for extension of Administration and Maintenance Buildings. The existing Administration and Maintenance Buildings were not sufficient to accommodate the current plant staff. It is required to extend / modify both buildings.

The location for the Modification of Administration and Maintenance buildings was in Turaif bulk plant.

The work included, but is not limited to, the following major activities: The existing conference room converted to control room. A portion of the existing toilet area added to the new control room while the remaining portion of the toilet area converted to Electrical room. Extend the Administration Building by adding two (2) offices, a pantry, a toilet area a conference room and a corridor. The added structure consisted of reinforced concrete foundations, columns, beams, and roof slab. The internal and external walls were made up of reinforced CMU., Extend / modify the Maintenance Building by demolishing the existing two offices, rest room and store room and adding a supervisor office, an employee office, a meeting room, a locker room, a store, a cafeteria, a printer room and a toilet area as shown in the drawings. The added structure shall consist of reinforced concrete foundations, columns, beams, and roof slab. The internal and external walls shall be made up of reinforced CMU, Lighting, power, grounding and fire alarm systems shall be provided., Data gathering & site survey shall be done before commencing the work., Data, Telephone, grounding, CCTV and Radio Communication shall be provided, The buildings were air conditioned by means of providing one running and one standby central DX Air Handling Units, and maintaining the recommended exhaust air rate from Toilets, Locker Room and Tea Room, Fire protection / fire fighting system were provided as required.

Alrabiah Project Experience

Project Name	Upgrade Building 1222 (Community Heritage Gallery) "Design Services"
Client	Saudi Aramco
Location	Dhahran
Year	2011
Project Value	SR 387,691

The existing building 1222 (Community Heritage Gallery) located at Dhahran, was to be modified to be utilized as a theater-pioneer, children exhibit area/video room, conference room, office, kitchen, toilet and mechanical room. The above mentioned rooms were currently being separated by the gypsum board on wooden stud partitions. The following are the main tasks to be carried-out under this project:

- *The interior space of the building developed into a single open space for exhibition. The existing mechanical room demolished.*
- *The garage utilized as main storage room, the existing store rooms outside the building in the north east side shall be developed into shared offices (i.e., 3 offices for Saudi Aramco employees). The toilet and kitchenette shall be provided next to the new offices.*
- *Existing storage room near building 1220 in the south side was developed to a visitor's toilet.*
- *The existing patio sunscreen was replaced with a new sun screen.*
- *New entrance was provided commencing from sidewalk in between buildings 1220 and 1222 leading to the existing patio in between both buildings.*

"ARE" was responsible for performing a condition survey of all existing facilities.

Alrabiah Project Experience

Project Name	Repair Request No. 47698, of Storage Area "Study & Design"
Client	SWCC – Al Khobar
Location	Al Khobar - KSA
Year	2017
Project Value	SR 298,500

SWCC Khobar Plant appointed "ARE" to IFP design package for the warehouse building, to be built in Khobar.
The building comprised of various facilities for staff, administration, etc. The work involved site survey, site investigations, preparation of design drawings and complete tender package. The works included all disciplines viz. civil, architectural, landscaping, plumbing, sanitary, HVAC, FFS, FAS, electrical, etc.

Alrabiah Project Experience

Project Name	Traffic Management Center (TMC) "Design Services"
Client	Royal Commission
Location	Jubail Industrial City
Year	2012
Project Value	SR 282,588

This project was part for the provision of support services to RC during design, bidding and construction. Various DCNs and TQs are assigned by RC and worked on by Alrabiah.

The main scope of work was that the Traffic Management Center (TMC) shall have an office for the Operations Supervisor, a room for visitors, Training & Incident Management, Electrical, Telecommunication rooms, and service areas. Security, privacy, cost – efficient, circulation and ease of maintenance were given due consideration in the design with a total area of 210 sq.m.

The following systems were provided:

- *Fire Suppression System*
- *Plumbing System*
- *HVAC System*
- *Lighting*
- *Fire Alarm System*
- *Telecommunication System*

Alrabiah Project Experience

Project Name	Marine West Pier Admin Building Expansion "Design Services"
Client	Saudi Aramco
Location	Ras Tanura
Year	2011
Project Value	SR 273,316

The existing Marine Admin Building at West Pier, Ras Tanura was a three storey building. The task was to prepare 3 options of conceptual design for an expansion to create more space for the personnel.

ARE was responsible for performing a condition survey of all existing facilities. The work included

CIVIL WORKS:

- *Pipe laying and testing of Drinking and Raw water supply line.*
- *Pipe laying and testing of sanitary wastewater drainage line.*
- *Backfilling and restoration of the affected areas after pipe laying of drinking, raw water pipes and sanitary pipes.*
- *All asphalt concrete paving restoration works conforming with SAES-Q-006*
- *Installation of plumbing fixtures and appurtenances.*
- *Installation of new manhole where the new sanitary pipe connected as shown in Drawing No. RA 248713.*
- *All plumbing installations in accordance with the Uniform Plumbing Code (IPC) 2009 & SAES-S-060.*

Other tasks included were STRUCTURAL WORKS, & ARCHITECTURAL WORKS

Alrabiah Project Experience

Project Name	Build A New Mubarraz Hydrotest and Area "Design Services"
Client	Saudi Aramco
Location	Mubarraz
Year	2011
Project Value	SR 244,476

The proposed site for the Hydrotest Building which was in the existing material yard located behind the existing Pipelines Support Facilities Building at Mubarraz, was currently being utilized as material store, car parking, and limited Hydrotesting. Conducting the Hydrotest in the middle of the yard is not in accordance to Saudi Aramco prevailing standard and not safe. For that, a new safe area is needed to conduct the Hydortest.

The following were the main tasks carried-out under this project:

- *Remove the existing area lighting poles located in the west of the material yard, to construct the new Hydrotest building.*
- *Demolish part of the asphalt area in the southwest of the material yard, where the new Hydrotest building will be erected.*
- *Erect the new Hydrotest building, and provide it with needed utilities from water, drainage..etc.*

The work included the furnishing of all labor, materials, supervision, tools, equipment, technical and professional services and temporary support works necessary for completion of the project in accordance with all the terms and conditions of the Contract including all specifications and drawings.

"ARE" was responsible for performing a condition survey of all existing facilities.

Alrabiah Project Experience

Project Name	Build a New Shedgum Hydrotest Shelter and Area "Design Services"
Client	Saudi Aramco
Location	Shedgum
Year	2011
Project Value	SR 239,209

The proposed site for the Hydrotest Building was within the existing material yard behind Pipelines Support Facilities Building #3100 at Shedgum. It was currently being utilized as material store, car parking, and limited Hydrotesting. Conducting the Hydrotest in the middle of the yard was not safe and not in accordance to Saudi Aramco prevailing standard. For that, a new safe area was needed to conduct the Hydrotest.

The following were the main tasks carried-out under this project:

- *Demolish part of the asphalt area in the southwest of the material yard, where the new Hydrotest building was erected.*
- *Erect the new Hydrotest building, and provide with needed utilities such as water, drainage, etc.*

The work included the furnishing of all labor, materials, supervision, tools, equipment, technical and professional services and temporary support works necessary for completion of the project in accordance with all the terms and conditions of the Contract including all specifications and drawings.

"ARE" was responsible for performing a condition survey of all existing facilities.

Alrabiah Project Experience

Project Name	Upgrade Gymnasium Locker Rooms at RT Middle School "Design Services"
Client	Saudi Aramco
Location	Ras Tanura
Year	2011
Project Value	SR 225,651

The scope of work for this project was to prepare a Detailed Design Package for the renovation of existing locker and toilet/ shower rooms in RT Middle School. it is recommended to renovate the existing facility to make it aesthetically pleasing and to provide adequate space to serve more than 150 students on a daily basis. The location for the modification of Building 814-C was in Ras Tanura Residence Compound, North.
The purpose of this project was to renovate the existing gymnasium locker rooms, shower area and toilets for Boys and Girls.

The work included the following major activities: Demolition, dismantling, and cutting-out of existing components affected by the new architectural floor plan and overall design requirements, Installation of toilet cubicle partitions, new doors, new finishing materials and other components according to the new architectural layout and details, Removal and dismantling of existing exhaust fans, ducts and accessories affected by the proposed design, Modification of existing supply air branch ducting to suit the proposed design, Installation of new supply and exhaust air grilles to suit gypsum board ceiling, Removal and dismantling of plumbing system as affected by the new architectural layout, Installation of new plumbing system and fittings according to the new architectural layout, Disconnection and removal of the existing lighting fixtures, affected outlets and conduits, Installation of lighting fixtures and switches, power socket outlets & heat detectors

Alrabiah Project Experience

Project Name	Renovation of Marine Maintenance Building # 20 "Design Services"
Client	Saudi Aramco
Location	Ras Tanura
Year	2010
Project Value	SR 186,258

"ARE" as a GES Contractor provided engineering and drafting services for the conceptual design package and budgetary estimate to renovate the existing facility and to construct extra workshops, offices and facilities to comply with the requirements of applicable Saudi Aramco and Industry Standards.

"ARE" prepared a project summary and write-up to describe all related work to be executed on the project.

The work included the collection and analysis of all data, preparation of scope of work, Budgetary Estimate, design of the site development and design of architectural, structural, mechanical, electrical and communication.
The conceptual design package covers the following:

Renovation of the existing facility, existing steel frame structure and the foundation, External cladding, Roofing, Doors and windows, Internal wall partitions and lining, Flooring and ceiling, Fixtures (Electrical, Plumbing, HVAC & Telecommunication), Fire suppression system, Extension of the Existing Marine Maintenance building.

Offices : Two (2) Nos. single occupancy office for Supervisors, One (1) Office consisting of 4 Cubicles for Section leaders, Meeting room accommodating 6-8 persons, Private toilet and pantry for Aramco personnel, Space for copier/fax machine.

Alrabiah Project Experience

Project Name	Shade for T&I Equipment at NGPD Maintenance Support "Design Services"
Client	Saudi Aramco
Location	Abqaiq
Year	2011
Project Value	SR 170,149

Abqaiq / Dammam field services unit was requesting to construct a shade for T&I equipment and materials at NGPD maintenance support area. The following were the main tasks to be carried-out under this project:

- *The proposed construction of shade for equipments and materials.*
- *Steel structure with corrugated sheet covering.*
- *Air and Water supply*
- *Electrical & Plumbing Fixtures.*
- *Ground floor concrete grade slab*

The work included the furnishing of all labor, materials, supervision, tools, equipment, technical and professional services and temporary support works necessary for completion of the project in accordance with all the terms and conditions of the Contract including all specifications and drawings.

"ARE" was responsible for performing a condition survey of all existing facilities.

Alrabiah Project Experience

Project Name	R & DC Apron Repair, Dhahran "Design Services"
Client	Saudi Aramco
Location	Dhahran
Year	2009
Project Value	SR 130,360

Saudi Aramco Research and Development Center 'R&DC' is located on the west area of Dhahran, south of main Gate # 2. R&DC consists of several interconnected Buildings surrounded by concrete sidewalks and landscape areas. The concrete sidewalk 'apron' has experienced settlement at different locations. The apron was repaired.

"ARE" completed the project, conforming in all respects, to the details and requirements of this scope of work, applicable Saudi Aramco Codes and Standards, Saudi Aramco Construction Safety Manual and the general Service Order Contract.

Alrabiah Project Experience

Project Name	New Kitchen and Locker Room at Uthmaniyah Fabrication Shop "Design Services"
Client	Saudi Aramco
Location	Uthmaniyah
Year	2011
Project Value	SR 126,806

The scope of work for this project was to prepare a Detailed Design Package for constructing new kitchen and locker room at Uthmaniyah fabrication shop. The existing kitchen attached to fabrication shop was demolished and shall be constructed in new location. The Detailed Design package was prepared together with relevant drawings and documents, applicable Saudi Aramco Standard Drawings and Saudi Aramco Engineering Standards.

The location for the construction of new kitchen and locker room is in Uthmaniyah fabrication shop, Uthmaniyah.

The work included the following major activities:

- Demolition, dismantling of existing kitchen and its utilities.
- The demolished area shall be finished with asphalt surface.
- Provide new kitchen, sitting room and locker room in new location.
- Provide utilities and services to proposed building.
- Provide and install cabinets & equipments in new kitchen
- Provide lockers and benches inside new locker room
- Provide appropriate building insulation, false ceiling, flooring and wall finishes
- Fixtures (Electrical, Plumbing, HVAC & Telecommunication)

Alrabiah Project Experience

Project Name	Marine Emergency Control Center at RT West Pier "Design Services"
Client	Saudi Aramco
Location	West Pier, Ras Tanura
Year	2011
Project Value	SR 52,900

The existing Marine Admin Building at West Pier, Ras Tanura is a three story building. It is made–up of steel structure with the cladding of precast concrete panels.

The Scope of work for this project is to study the options of establishing Marine Emergency Control Center either inside the third floor of Marine Admin Building or by extending the third floor or by constructing a new building on the rear side of Marine Admin Building.

The GES Contractor shall provide engineering and drafting services for the preparation of conceptual design package to establish Marine Emergency Control Center, complying with the requirements of applicable Saudi Aramco and Industry Standards.

The design scope of work will include, but not limited to the following: Search the existing drawings of Marine Admin Building from the Saudi Aramco Drawing System and print clear copies of the required drawings., Review and obtain the required data from the drawings, Prepare the architectural, structural, electrical, HVAC, fire protection and telecommunications drawings and necessary design calculations, The three options will be analyzed and recommendations will be prepared for the most cost effective option, The first option is to accommodate the equipments and personnel of Marine Emergency Control Center at the third floor of Marine Admin Building, The second option: by extending the 3rd floor of Marine Admin Building; The third option is to construct a new building for Marine Emergency Control Centre on the rear side of existing Marine Admin Building, Prepare a project summary and construction scope of work to describe all related work to be executed on the project, Prepare material take-off, and CAT-I estimate at 90% submittal.

Alrabiah Project Experience

Project Name	"Project Management Services" for Business & Community Projects
Client	Khafji Joint Operations
Location	Khafji
Year	2013
Project Value	OPEN

The Khafji Joint Operations (KJO) appointed "ARE" to provide project management services for the supervision of the design and construction of various buildings, bridges, roads, facilities, infrastructure to be built in their facility in Khafji. The works mainly involve checking the performance of design documents by the design consultant, and supervise the execution works by the construction contractor on site. The project is being executed by a team of about 26 engineers including Project Manager, Project Controls Specialist, Contracts Manager, Building Management Specialist, Sr. Scheduler, Sr. Material Engineer, etc. The works also include all disciplines viz. civil, architectural, landscaping, interior design, plumbing, sanitary, HVAC, FFS, FAS, electrical, etc

Alrabiah Project Experience

Project Name	Saudi – Kuwaiti Border in AlRuq'ee - Residential, Administrative and other Infrastructure facilities " Project Management & Site Supervision"
Client	Ministry of Finance, Riyadh
Location	AlRuq'ee
Year	2012 – Ongoing
Project Value	SR 50,665,000

The Ministry of Finance appointed "ARE" to provide project management services for the supervision of the construction of various buildings, roads, facilities, infrastructure to be built in Al-Ruq'ee Border Exist. The works mainly involved checking whether the execution on site is undertaken as per the project contract documents. The activities included preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc. The project was being executed by a team of 66 engineers including Project Manager and engineers from all disciplines viz. civil, architectural, landscaping, plumbing, sanitary, HVAC, FFS, FAS, electrical, etc

Alrabiah Project Experience

Project Name	Women's Arts Faculty Building and Stadium in KFU, Al Hassa " Site Supervision"
Client	King Faisal University, Al Hassa
Location	Al Hassa
Year	2013 – Ongoing
Project Value	SR 10,512,000

King Faisal University appointed "ARE" to provide construction management services for the supervision of the construction of arts faculty building and stadium for women, in Al Hassa. The works mainly involved checking whether the execution on site is undertaken as per the project contract documents. The activities included preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc. The project was being executed by a team of engineers including Project Manager and engineers from all disciplines viz. civil, architectural, mechanical, electrical, etc.

Alrabiah Project Experience

Project Name	Buildings in Taif University, "Project Management & Site Supervision"
Client	Taif University,
Location	Taif
Year	2012
Project Value	SR 2,975,000

The Taif University appointed "ARE" to provide project management services for the supervision of the construction of various buildings, roads, facilities, infrastructure to be built in Taif University. The works mainly involved checking whether the execution on site was undertaken as per the project contract documents. The activities included preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc. The project was being executed by a team of 17 engineers including Project Manager and engineers from all disciplines viz. civil, architectural, landscaping, plumbing, sanitary, HVAC, FFS, FAS, electrical, etc.

Alrabiah Project Experience

Project Name	Construction Supervision of Boys & Girls School "Project Management & Site Supervision"
Client	Knowledge Enrichment Co.
Location	Dammam - KSA
Year	2015
Project Value	SR 2,350,000

Knowledge Enrichment Co. appointed "ARE" to provide supervision services for the construction of a Boys & Girls School, in Dammam.

The works mainly involved checking whether the execution on site is undertaken as per the project contract documents. The activities include preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc. The project is being executed by a team of engineers including all disciplines viz. civil, architectural, mechanical, electrical, etc.

Alrabiah Project Experience

Project Name	Multi Cargo Storage Building in King Abdulaziz Port, Dammam "Site Supervision"
Client	Saudi Customs - Riyadh
Location	Dammam
Year	2018 – Ongoing
Project Value	SR 1,180,000

"ARE" were appointed for the supervision of the completion works for the Development of Multi Cargo Storage Building in King Abdulaziz Port, Dammam.

Alrabiah Project Experience

Project Name	SREDF Building in Al Hassa "Site Supervision"
Client	SREDF, Riyadh
Location	Al Hassa
Year	2002
Project Value	SR 1,312,800

The Saudi Real Estate Development Fund (SREDF) appointed "ARE" to provide construction management services for the supervision of their building in Al Hassa. The works mainly involved checking whether the execution on site was undertaken as per the project contract documents. The activities included preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc. The project was being executed by a team of engineers including Project Manager and engineers from all disciplines viz. civil, architectural, mechanical, electrical, etc.

Alrabiah Project Experience

Project Name	BSF Branch in Saudi ARAMCO Dhahran "Site Supervision"
Client	Banque Saudi Fransi
Location	Dhahran
Year	2011
Project Value	SR 396,540

The Banque Saudi Fransi appointed "ARE" to provide Construction management services for the supervision of the Interior Design works planned within the BSF branch facility in Saudi ARAMCO Dhahran, North Park area. The works mainly involved supervising whether the execution on site was undertaken as per the project contract documents. The activities included preparation of monthly reports, conduct regular meetings, inspection of all activities on site, approval of materials, etc. The works also included all disciplines viz. architectural, interior design, civil, mechanical, piping, plumbing, electrical utilities, etc.

4.2 Alrabiah Citec (A Cyient Company) Association - “Industrial Qualification”

Expertise with Passion.

Alrabiah - Citec (A Cyient Company) Association

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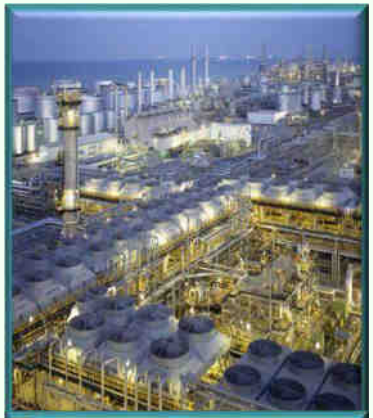
FI-65101, VAASA , Finland.

T: +358 6 3240 700 F: +358 6 3240 850

Website www.citec.fi

About Alrabiah

- Experience for 30 years
- Around 200 personnel
- Multi-disciplinary professional consultant engineering services
- Head office in Dammam, with regional offices in Riyadh, Jeddah and Yanbu
- Clients include:
  - Government Ministries & Authorities
  - Saudi Aramco
  - Royal Commission
  - KAUST
  - SABIC
  - Marafiq
  - SWCC
  - SEC
  - KJO



Engineering Services

Alrabiah offers engineering services in the following:

- *Industrial Facilities*
- *Buildings*
- *Electrical & Mechanical Utilities*
- *Infrastructures*
- *Project Management & Site Supervision*
- *Specialized Services*

Specialized Services

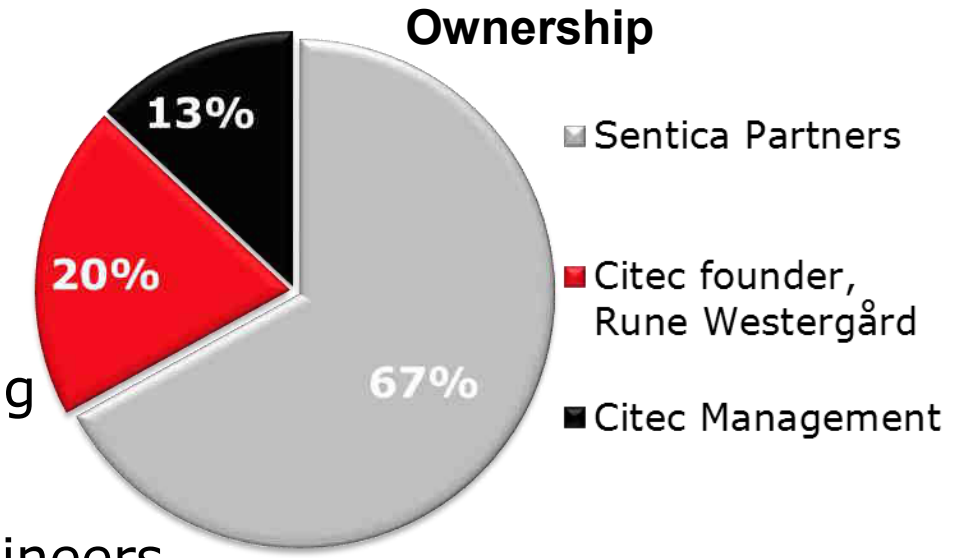
We offer specialized services in:

- *Risk Management*
- *Fire & Safety Engineering*
- *Environmental Studies*
- *HAZOP Studies*
- *Contract Management etc.*

We provide services for oil & gas, petrochemical, water desalination & power plants, and other industries & infrastructure facilities.

Citec Group

- Established in 1984
- Turnover 2017: 69 MEUR
- 1200 specialists
- CEO Johan Westermarck
- We operate in both domestic and international markets through local presence and global resourcing
- Projects delivered to 120 countries
- Since 2011 Association with Alrabiah Consulting Engineers



Our services covers the entire engineering project value chain in these business areas in KSA

Power
- Thermal plants
- Gas turbines
- Engine power
- Solar (CSP) and Waste to Energy (WtE)

Oil & Gas
- Onshore
- Offshore
- LNG
- Downstream

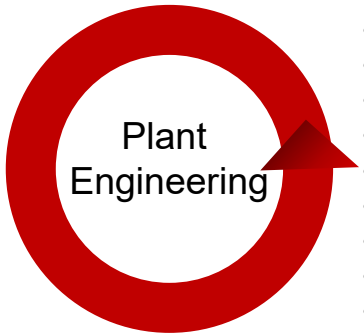
Petrochemical
- Chemicals
- Fertilizers
- Renewable Resources

Water & Environment
- Desalinisation
- Pipelines
- Industrial waste

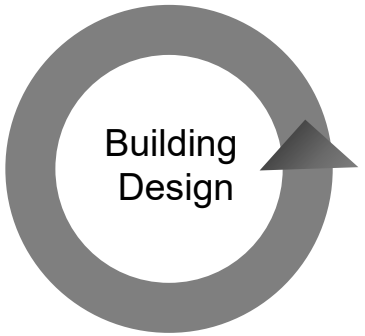
Project Management Services
- Project management
- Site supervision
- Factory Acceptance Testing

Information services
- Project information
- Supplier information logistics
- Quality control of information
- O&M Manuals
- Consulting

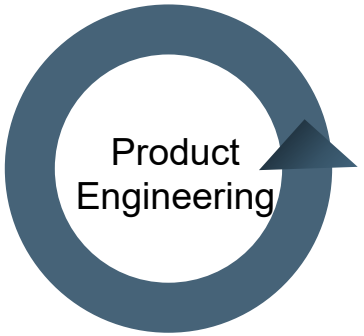
Services



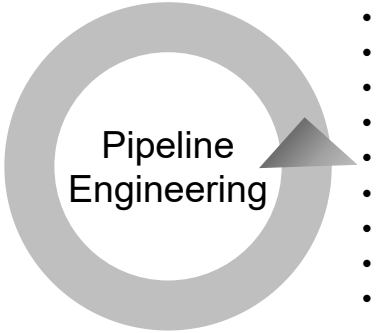
- EPCM
- Project management
- Basic and detail engineering
- Piping & Mechanical
- Civil & Structural
- Process
- Electrical & Instrumentation
- HVAC
- Module design/Modularisation



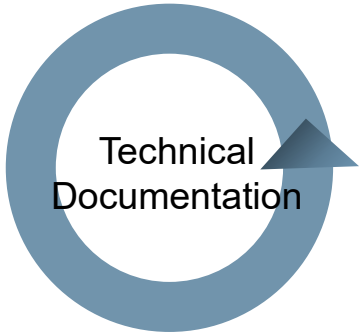
- Geotechnical and infrastructure design
- Foundation and substructure design
- Dynamic Analyses and FEM calculations
- Load bearing Structures: steel, concrete and wood frames
- Architectural and building design
- Bill of quantity and mass calculations
- HVAC and Plumbing design
- Project Management and site supervision



- Concept Design
- Value engineering
- Product lifecycle management
- Engineering Analysis
- Detail engineering
- Electrical & Automation
- Testing
- Product animation & documentation
- Product safety



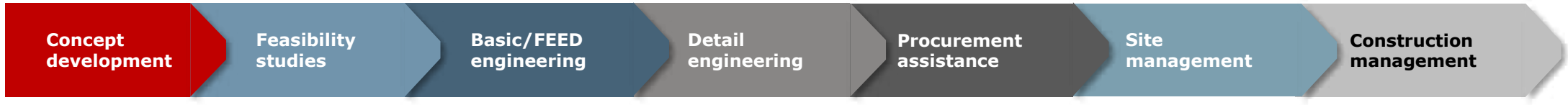
- Feasibility, FEED & HAZOP
- Conceptual design
- Surge analysis
- Hydraulic calculations
- Cathodic protection
- Alignment sheet
- Stress analysis
- Detail engineering
- Site support



- Information solutions
- Product data maintenance
- Technical publications
- Document control
- Quality control
- User experience

Plant engineering competence

Services throughout the entire value chain



Multi-discipline engineering expertise

Plant Design

- Design Basis & Specifications
- Basic Engineering
- Layouts piping, equipment, plot plan
- Vessel Trims & Nozzle Orientation
- 3D Modeling PDMS, SP3D, PDS
- Supporting &Secondary steel Calculations
- Pipe Stress analysis
- Isometric drawings
- Analysis & Design of Superstructure
- Technological Structures
- Boiler Structures
- Blast Resistance Structures
- Pipe racks (modular type)
- Silos
- Analysis & Design of Substructure
- Block Type, Table Top and Pile Foundations
- Chimney design
- Architectural / Building Design
- Plumbing

Mechanical

- Equipment Design - Pressure Vessels, Heat Exchanger, Columns, Reactors, Tank, Silos, etc. as per Codes
- Datasheets & Specifications
- Vendor Data Evaluation/ Technical Bid Evaluation
- Assembly, Manufacturing Drawings and Bill of Material for Fabrication
- Equipment cost Estimation Assistance by providing Bill of Quantity

Electrical

- Design Basis & Specifications
- Power System Studies
- Equipment Sizing
- Switchyard Design
- Earthling & Lightning Protection System Design
- Cable Sizing & Schedule
- Lighting System Design
- Consumer/Load List & SLD Preparation
- Fire & Gas Detection System Design
- Electrical hook ups
- Cable Tray Design and Layout

Instrumentation

- Design Basis, Specifications & Control Philosophy
- DCS and PLC Engineering
- Instrument Index
- Field Instrument Datasheets, JB specifications Block Diagrams
- Logic & Control Drawings
- Control Power Distribution Diagrams
- Layouts - Control Room Equipment, Instrument Layout and Air Distribution Layout
- Instrument Hook-up Drawings and Loop Diagrams

Pipeline Design

- All Skills in Pipeline Design are available within Citec
  - Process design including PFDs, P&IDs
  - Hydraulic design incl. Surge Analysis
  - Basic design including conceptual pipe routing and GA drawings
  - Pipe Stress calculations using CEASAR II
  - Pipe plans & profile drawings
  - Pipe Support and pipe rack design with the related civil design
  - Detailed Pipeline drawings including Isometrics
- Other related skills
  - Pipe & Component Specifications for Procurement
  - Technical Bid Evaluation
  - Cathodic protection design, layout & detail
  - Multi-Disciplinary Pump House Design incl. Civil, Electrical and I&C Design
  - SCADA, DCS, PLCs, HAZOP etc.

Expertise with Passion.

SOME PROJECT CASES

Smart value engineering saving money for the client

Steam network efficiency improved with Citec's recommendations

Citec's Customer:
Technoconsult

Plant:
Takreer Ruwais Refinery

Project Location:
UAE

Fuel:
Natural gas
Refinery gas

Customer Challenge

Abu Dhabi Oil Refinery Company (TAKREER's), Ruwais Refinery was experiencing serious steam management issues due to increased demand and unreliability of the steam network.

Citec Solution

Citec performed detailed site survey, data collection, study of operating parameters, troubleshooting related to steam and condensate network.

Conclusion of Analysis: Steam network efficiency was reduced due to the boiler age, heat loss from inadequate and old insulation, malfunctioning of steam traps, line/flange leakages etc.

Based on the extensive study and site survey Citec has submitted various study reports, drawings, steam balance, simulation models, temperature, insulation and steam trap survey reports to Takreer with recommendation on refinery steam management.

Existing foundations retrofitted to incorporate PEB buildings

Citec's Customer:
NATRIP

Project Location:
India

Type: Automotive Testing Lab

Advance passive safety Lab, GARC is the largest state of the art testing lab planned in India, designed to cater to diverse testing with respect to passive safety on vehicle.

Customer Challenge

Foundation was already cast at site considering conventional steel building whereas Customer decided to use PEB steel building.

Citec Solution

The existing foundations were retrofitted for proposed loads and changes with minimum impact of cost and work to incorporate the PEB buildings.

Scope: EPCM

Project delivered before time to meet client's revised commissioning schedule

Citec's Customer:
Saipem

Project Location:
UAE

Plant:

Solvent regeneration Unit of Shah gas development refinery project, having capacity of 1 billion cubic feet a day of sour gas from the Shah field.

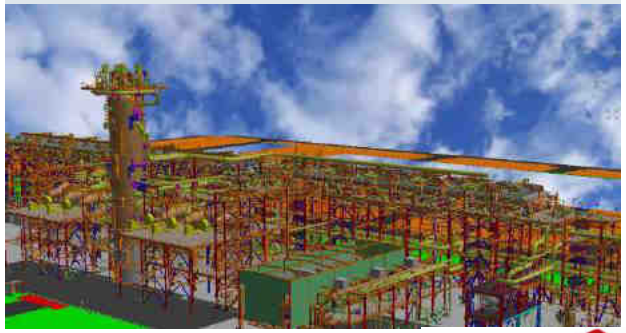
Customer Challenge

Change in project schedule, reducing it by one and half month compared to the baseline.

Citec Solution

Citec managed the compressed schedule by optimized resource and project management to achieve the goal.

Scope: Compete Multidiscipline engineering



Modularization is in our DNA

More than 200 modules for Biopower plants

Citec's Customer:
MW Power
Plant:
Bio Thermal plants

Live Steam Module

Blow Down Tank Module

Assembly of: Condenser Module, Vacuum Module, Cooling Water Pump Module

Several Modules for Engine Power plants

Citec's Customer:
Wartsila

Plant:
Engine Power plants

Exhaust Gas Module

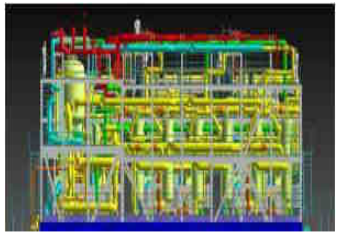
Compact Booster Unit

Modules for Offshore and Onshore applications

Citec's Customer:
Hamworthy, Wasco,
Golar, Höegh,
BW offshore

Gas compression module

FSRU LNG Regasification



Heating and cooling medium

Customer Challenge

Space constraint, Installation/Erection time, Increased site activity, Quality of fabrication and material wastage.

Citec Solution

Developed various modules for different systems, achieving following benefits:

- Fast purchases, fewer orders & risks in on-time deliveries.
- High grade of pre-fabrication.
- Pre-tested solutions make product development more efficient.
- Minimum of work at site: less risks, better quality, low costs, fast deliveries.
- Planning and documentation on the early phase of a project saves both time and money.
- Making sales more efficient by accurate prices and earlier deliveries.
- Right targeted technical expertise and more customer orientated project groups.

Be Close to the Client

Citec's Project team deputed to Client's office

Citec's Customer:
ThyssenKrupp India

Project Location:
Iowa & Louisiana, US

Plant:
Two Ammonia plants with a capacity of 2425 TPD of Ammonia, 3850 TPD of Urea and 3640 TPD of Ammonia, 3850 TPD of Urea respectively.

Scope

Multi-discipline detail engineering for units mentioned below:

- Desulphurisation area
- Ammonia Recovery and HRU area
- Methanation Deaerator area (Boiler Feed Water)
- Compression area
- Waste Heat recovery & CO conversion area
- Ammonia Synthesis & Refrigeration area
- Boiler package area
- Steam generation area
- Urea synthesis area
- Urea granulation & Refrigeration area
- Pipe rack

Client benefits from Citec's local presence and global resourcing

Citec's Customer:
Hanwha E&C

Project Location:
Saudi Arabia

Type: Pipeline

Scope

Complete Multidiscipline engineering services for 20" ALCO and 24" HFO fuel pipelines from Yanbu crude oil terminal to Yanbu 2 Power Plant, length 19 KM.

- Design of process, piping, electrical, instrumentation and fire fighting.
- Preparation of Design basis scoping paper (DBSP) for each pipeline with Saudi Aramco standards & getting them approved from Saudi Aramco
- Production of all detail engineering and IFC deliverables

Citec's Customer
Linde AG

Project Location:
Russia

Plant:
Ethylene cracker

Scope:

Detailed Engineering for Piping, Civil & Structural, Architectural, HVAC for various packages of Ethylene Cracker Plant.

Citec's presence in multiple countries: Germany, Russia, India, Finland have contributed to the smooth and successful execution of the project:

- Citec Germany responsible for local co-ordination being close to customer.
- Piping engineers from Citec India deputed to clients premises in India as per their requirement.
- Architectural and HVAC executed from Citec Finland.
- Citec Russia acted as RDI approver

LNG – Terminal Northern Finland's Tornio

Case in brief

Citec's Customer:
Wartsila .

Location:
Bay of Bothnia Finland

Plant:
Capacity: 50000m3 storage capacity.

Scope

Complete Multi-discipline Engineering Services for LNG Terminal .Piping Civil ,Electrical & instrumentation.
Total Number of lines ~500 & 50 Equipments.

Engineering services for Waste to Energy Treatment Power Plant Project

Case in brief

Citec's Customer:
Pan India Infraprojects Ltd. (ESSEL)

Location:
India

Plant:
KADAPA 300 TPD, KADAPA MSW project

TADEPALLIGUDEM 330 TPD, TADEPALLIGUDEM MSW project

ANANTPUR 330 TPD, ANANTPUR MSW project

Scope Of Work:

Multidiscipline Engineering Procurement Assistant and Construction management services for WTE Power Plant

Engineering services for Thermal power plant

Case in brief

Citec's Customer:
Kraftanlagen München

Location:
Germany

Plant:
Fuel Type: Lignite (Brown coal)

Capacity:

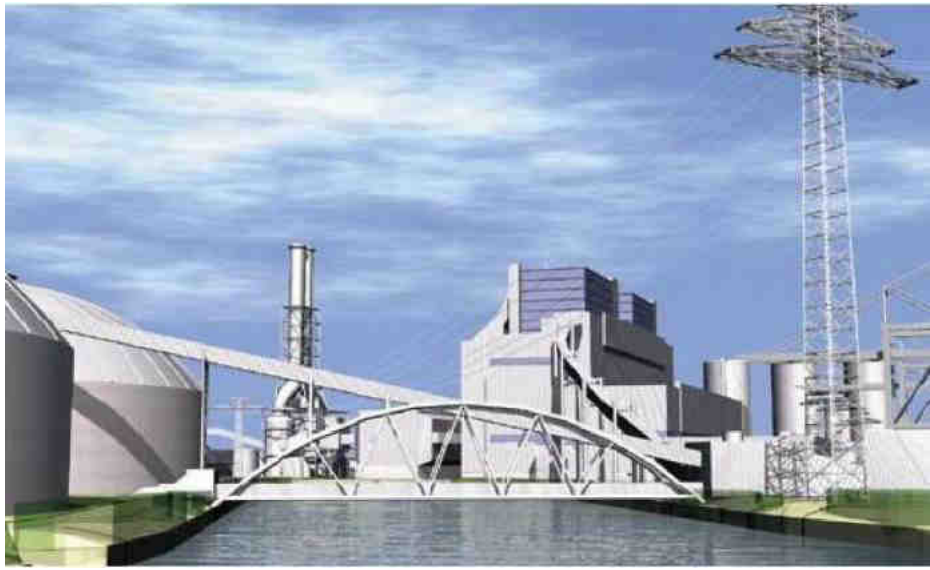
675 Mwe, Boxberg

2 x 820 Mwe, Moorburg

Scope Of Work:

Detailed Design of Piping for 798 (Boxberg) & 2065 (Moorburg) pipes.
Material lists and drawings for Pre-fabrication and Installation of all the piping, pipe supporting and secondary steel structures for pipe supporting.
All documentation required by the standards and notified body i.e. stress and flexibility analysis of piping, drawings, stress analysis of steel structures, pressure drop calculations etc.

Boxberg Thermal power plant



Moorburg Thermal power plant

Civil design for Gas gathering centre

Case in brief

Citec's Customer:
Petrofac India Projects Ltd.

Location:
Kuwait

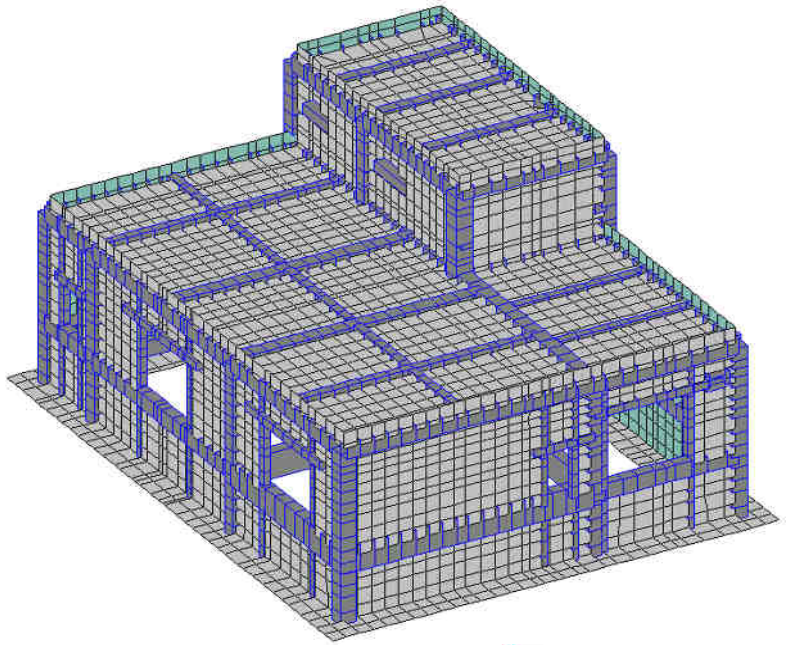
Project:
New Gathering Center (GC-29) & New Gathering Center (GC-32).

Scope

Citec's main scope for **New Gathering Center (GC-29)** was Civil design including the RCC structure and Architectural design for 8 buildings including 2 blast proof buildings. Apart from civil, there was E&I scope for Earthing, lighting, F&G and Telecom layouts.

Challenge: Blast resistant design involving critical analyses like Blast analysis and Time History analysis

For **New Gathering Center (GC-32)** Scope was to provide Detail engineering for 15 nos. pipe racks (Total tonnage 2250 MT).



Engineering services for Thermal Power plant

Case in brief

Citec's Customer:
Jacobsen Electro

Location:
Kinyerezi, Tanzania

Plant:
Thermal Power plant of capacity 150 MW

Scope Of Work:

Concept, Basic, Detailed design, Engineering management, Partly Project management, Procurement management, Document management, Site supervision

Full multidiscipline scope:
Process & Equipment , Piping, Electrical, Automation, Civil & HVAC, Fire fighting & Detection

Engineering services for Waste to Energy plant

Case in brief

Citec's Customer:
HZI

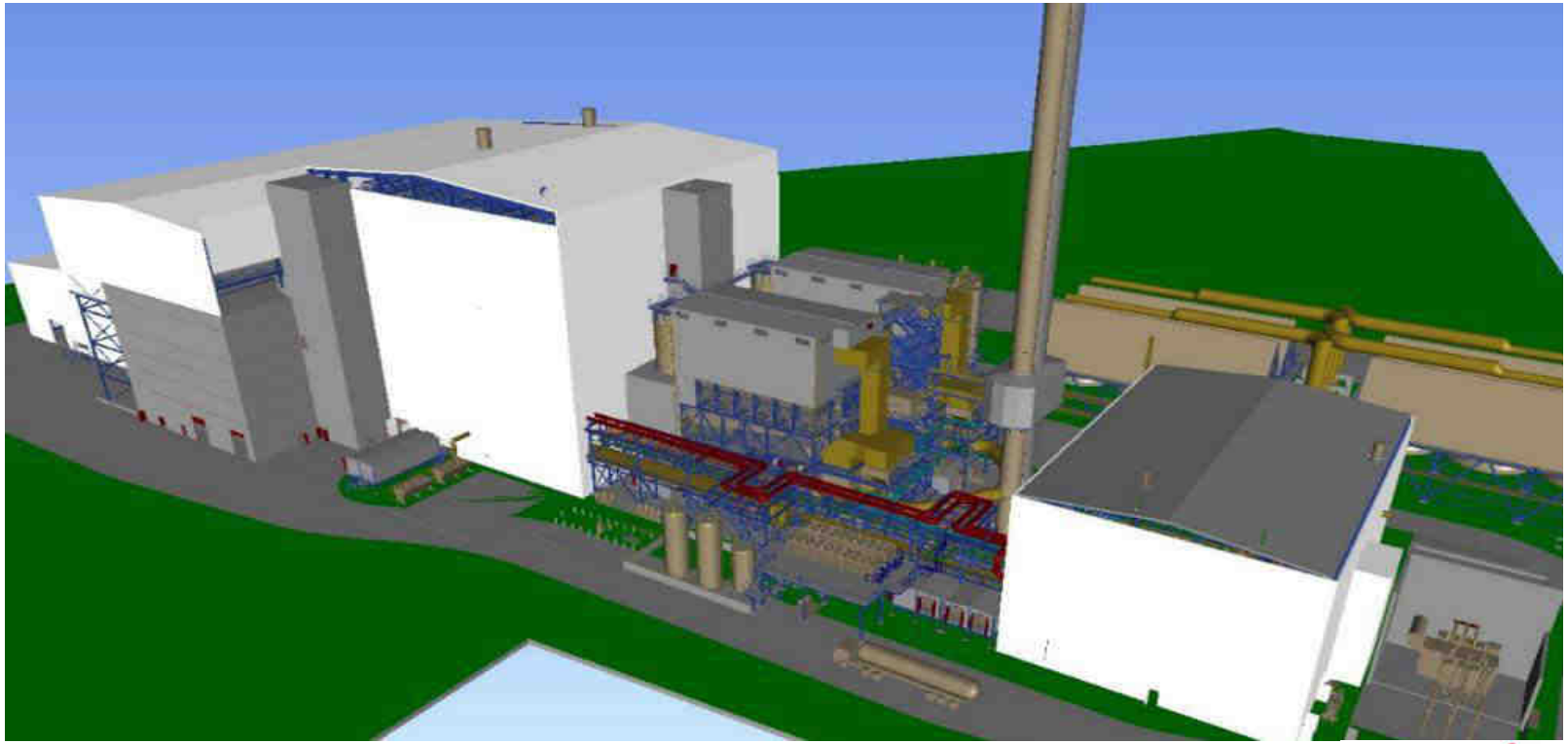
Location:
Ferrybridge, UK

Plant:
Waste to Energy plant
Capacity: 513.000 t/a, 68 MWe

Scope Of Work:

Mechanical, Piping, Civil, EM

- Mechanical and piping engineering, 3D model (PDMS), pipe isometrics, installation and support drawings.
- Steel engineering for total water & steam cycle: pipe bridge and steel structure design, calculations, 3D modelling, installation drawings etc.



Engineering services for Engine power plant

Case in brief

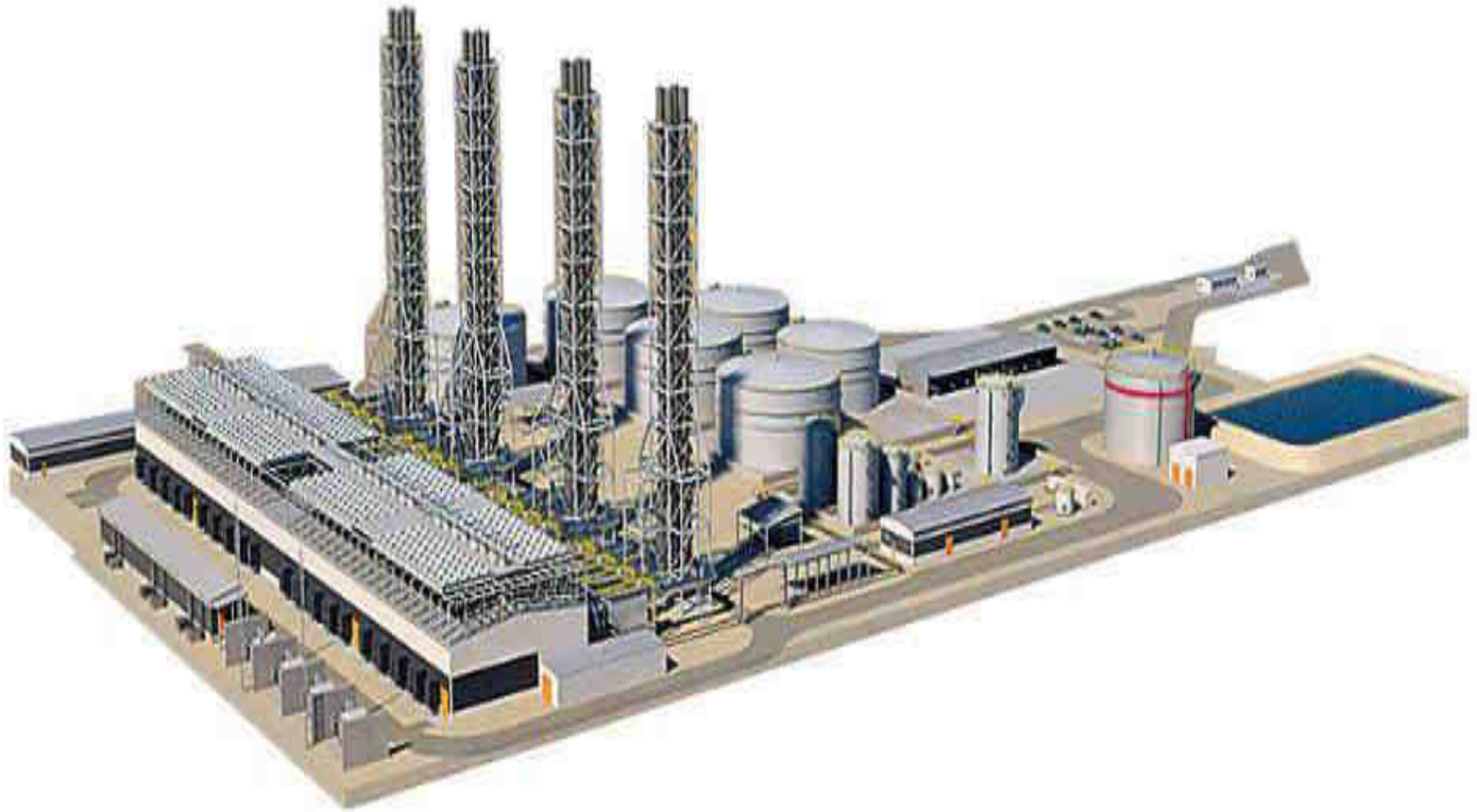
Citec's Customer:
Wärtsilä

Location:
Jordan, Amman

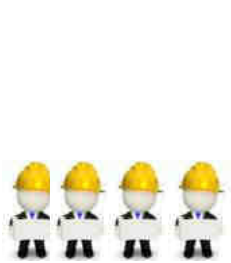
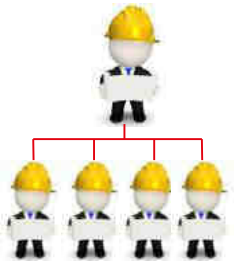
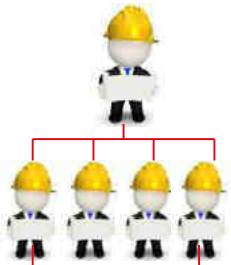
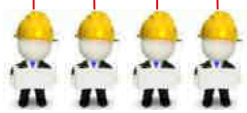
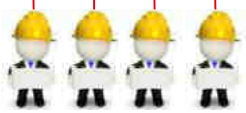
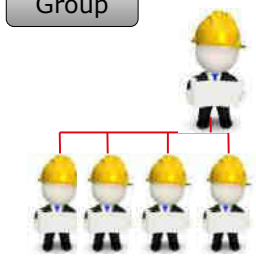
Plant:
Engine Power plant
16 x 20 MW 18V50DF engines, Net power 250 MW
Tri fuel plant: uses light or heavy fuel oil or gas

Scope Of Work:

Full scope of engineering and documentation for the plant.



General operating models

	Model 1	Model 2	Model 3	Model 4	Model 5
Setup	Citec working at customer premises within customer projects	Citec project team working at customer premises with assigned project	Citec project team working at customer premises and home office project team with assigned project	Citec has coordinator, or PM, at customer premises. Project team at home office	Citec has project team at home office working for the customer project.
Customer premises				 Steering Group	Steering Group
Citec premises					
Type of projects	Manpower. Smaller projects or tasks	Part of projects or stand-alone projects. Single discipline participation for certain projects	Part of major projects or stand-alone projects. Multi-discipline participation in certain projects	Typically Single discipline projects. Can also be a multi-discipline project with a PM at the customer premises	Outsourcing of work. Direct contact and access to customer network and systems
Customer Benefit	Rapid deployment of staff to balance work load peaks and unforeseen work	A complete team ready to take on bigger tasks or projects at the customers premises	Cost efficiency by having more people working at their office. Global resourcing of local specialists	Cost efficiency. Global resourcing of specialists and designers	Cost efficiency and less office space needed. Global resourcing of needed people

Maturity level of partnership

Engineering design tools

3D TOOLS

- Archicad
- Autocad Mechanical (Product Design Suite – Standard
- Auotdesk Inventor Professional (Produt Design suite – Premium)
- Autodesk Plant design Suite (Plant Design suite – Premium)
- Autodesk Revit (Building Design Suite – Premium)
- AVEVA PDMS
- MagiCad
- MicroStation Plant Space
- NX (/Ideas)
- PDS
- SmartPlant 3D
- Solid Works
- Tekla Structures
- Inventor
- Team Centre engineering

2D TOOLS

- AutoCad Electrical
- AutoCad P&ID (Plant Design suite – Premium)
- Autocad
- Comos
- Microstation
- Smart-Sketch
- Smart Plant INtools
- Smart Plant P&ID

CALCULATION TOOLS

- ANSYS
- Autodesk Robot Strucural Analysis
- AutoGrid Pro
- Caesar II
- EDR Heat Exchanger
- Energy Mng
- Flaresim
- HYSYS Static & Dynamic + Flarenet
- Master Series
- MathCad
- Mette (partner)
- NX advanced FEM
- Ohmtec (partner)
- PVElite
- RFEM
- ROHR2
- Sinetz
- Staad Pro
- Tank
- Thermoflow
- SPS Stoner
- ETAP
- Abacus

Customer References

citec