



ASSOCIATED
CONSULTING
ENGINEERING

BROCHURE

COMPANY PROFILE

Associated Consulting Engineers (ACE) is a professional engineering firm staffed and organized to provide "multi-disciplinary" transportation and engineering consulting services. Established in 1956 as partnership in Lebanon, and later incorporated into a shareholding company, ACE is now totally owned by its professional senior staff.

ACE, has progressively evolved as a recognized international consulting firm, providing services in transportation, planning, engineering design, architecture, construction management and supervision. According to published surveys in year 2019 by the reputable Engineering News Record (ENR) magazine of U.S.A., ACE ranked 69th among the top 225 international consultant firms worldwide.

ACE achievements in the diverse areas of specialized engineering services, supervision of works and construction management are reflected in its long record of completed projects and satisfied clients. To-date the firm has to its credit the undertaking of numerous multi-disciplinary consulting engineering activities for projects, which had collectively exceeded U.S. \$ 40 Billion in construction cost.

ORGANIZATION

ACE provides its wide range of professional consulting services through a dynamic management interaction among its international headquarters, regional offices and affiliated firms located in more than 13 countries.

Regional offices are structured and staffed to satisfy project requirements and provide for local participation and experience. The Headquarters for International Operations also serve as main design offices with the expertise, efficiency and capacity to handle complex projects and thus augmenting the capabilities of the regional offices and affiliates.

The combination of size, expertise and geographic base has given the firm its ability to serve local clients including government ministries and has provided the essential continuity in the firm's operations in Lebanon, Kuwait, Bahrain, Saudi Arabia, United Arab Emirates, Qatar, Iraq, Oman, Egypt, Jordan, Palestine, Greece, United Kingdom and United States.

STAFF SIZE AND CAPABILITIES

ACE staff of nearly 650 includes a core of 420 professional engineers and architects in various disciplines. The Multi-lingual Capabilities of the staff ensures effective communication levels deemed essential in the international consulting world.

ACE staff is familiar with dominant International Standards and a number of Local Regulatory Codes prevailing in various areas of the world.

Computer Applications provide the staff with advanced engineering practice and powerful documentation base, which constitutes an effective tool, deployed by all technical and administrative departments including the associated peripheral support functions.

SCOPE OF SERVICES

ACE provides a wide range of services extending from initial planning of a project up to its final completion stage including operation and maintenance. Services provided by ACE include:

- Water Supply and Wastewater
- Treatment Plants and Sea Outfalls
- Transportation
- Urban and Regional Planning
- Roads and Highways
- Construction Management
- Project Planning
- Economic and Financial Studies
- Environmental Studies
- Industrial and Solid Wastes
- Geotechnical Engineering
- Irrigation and Fire-fighting
- Military Schemes
- Residential and Commercial Facilities
- Hotels and Touristic Schemes
- Operation and Maintenance
- Hospitals and Health Care Facilities
- Investigations and Surveys
- Educational Facilities
- Industrial Complexes
- Airports, Ports and Marine Facilities
- Inspection and Testing
- Oil and Gas Facilities



ACE ORGANIZATION CHARTS

Figure 1 shows the Holding ACE Company. The chart outlines the general organization of ACE offices around the World.

Figure 2 shows the organization chart of Beirut Office and outlines the responsibility pattern within the office.

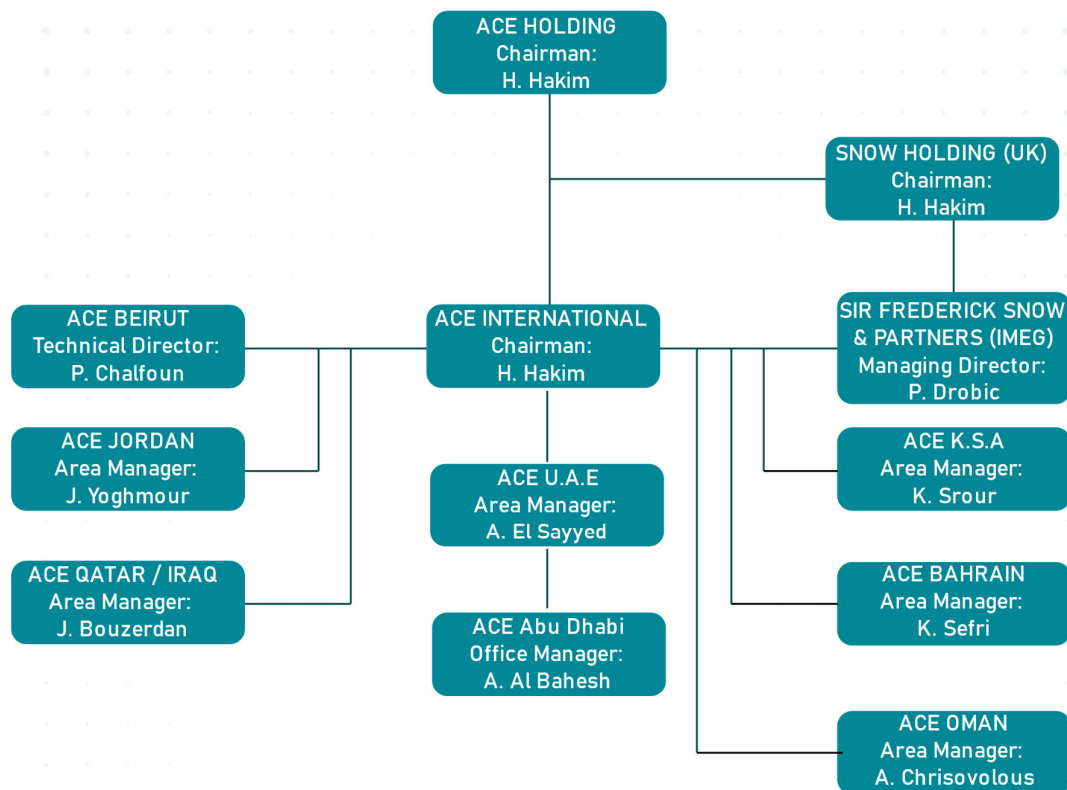


Figure 1: ACE Holding Organization Chart

Organization Chart

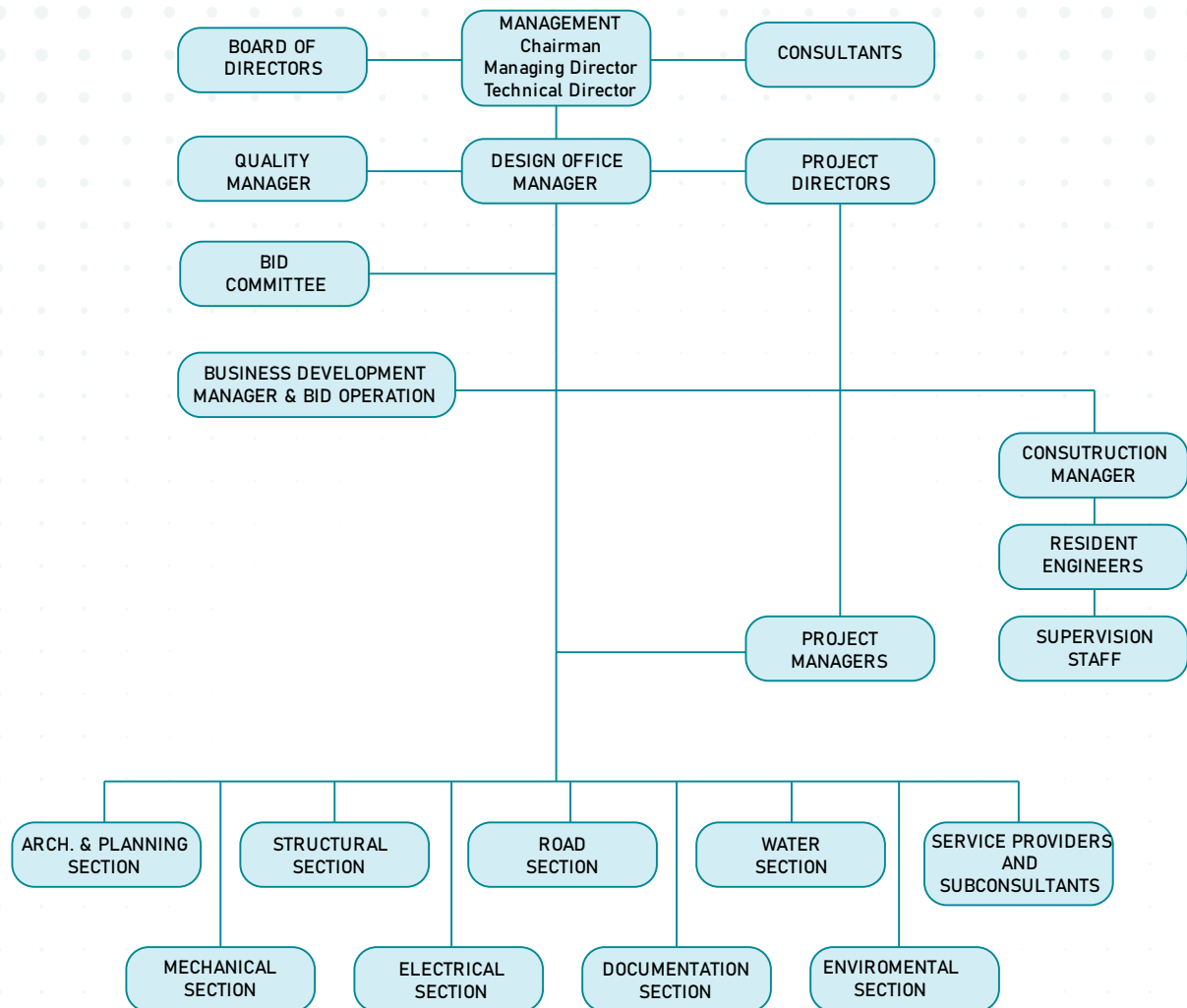


Figure 2: Beirut Office Organization Chart

QUALITY ASSURANCE (ISO CERTIFICATION)



Through our long association with major projects, ACE has developed a Quality Assurance system, covering activities relating to contracts, the design office, project management, site supervision and safety.

Associated Consulting Engineers has been registered by third party assessors as achieving ISO 9000, 14000 & 18000 series standards. ACE has also provided quality management, environmental and safety services meeting the relevant standard for the industry.

The company policy for quality management is to provide services that continually meet the requirements of Clients and facilitate the achievement of the firm's mission: "to enable our clients to realize their development ambitions worldwide".

This policy is implemented by the application on all commissions of the ACE Management System, which meets the requirements of ISO 9001: 2000 (Upgraded to 2008). The Management System is appropriate to our business of providing multi-disciplinary consultancy services in connection with the natural and built environment.

In order to achieve the objective of the Safety and Health Program by reducing the number of accidents and injuries, ACE commits to provide a safe and healthy work environment for all employees and to abide by local laws and regulations as they pertain to our operation.

ACE is fully committed also to meeting work related needs in a manner consistent with a clean environment. We believe it is both good business practice and our duty to protect the natural and cultural resources of the communities we serve. In keeping with this belief, it is our policy to conduct our business in an environmentally responsible manner that protects the public, our employees, and the earth that we all share.



Directors and staff are required to apply the measures set out in the Management System to ensure that services provided for Clients:

- Achieve the agreed requirements
- Incorporate the required degree of skill and care
- Provide a sound basis for continuous improvement
- Comply with applicable statutory and regulatory requirements

COMPUTER FACILITIES

ACE in-house computer facilities have been continually upgraded and extended with state-of-the-art technology. Computerization provides an effective tool to support and enhance technical and administrative functions and to facilitate data processing, design and drafting operations.

ACE engineers and designers are fully conversant with the efficient and appropriate use of computers and their software to optimize the efficiency of project execution and monitor projects' progress.

EQUIPMENT AND SOFTWARE

ACE has among its staff, experienced system analysts, programmers and technicians to manage and coordinate the various computer and software applications. A large library of computer software has been established to meet specific engineering and project needs.

ACE's Beirut office is fully equipped with appropriate computer software, and equipment to allow the team to follow up and plan the efficient execution design and supervision projects as well as giving the necessary office technical backup when required.

The office is fully equipped with scanners, printers, plotters and digitizers for the production of reports and drawings.

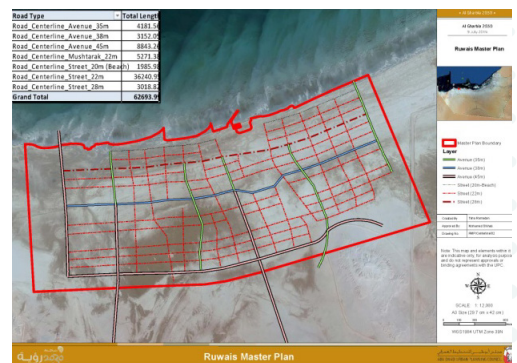
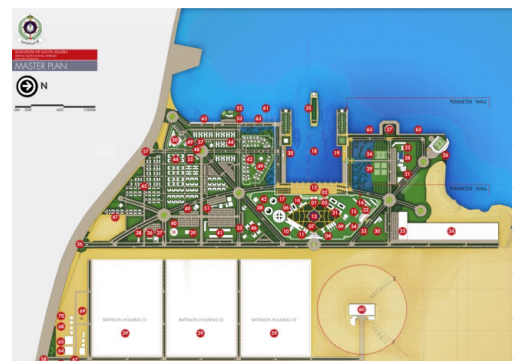
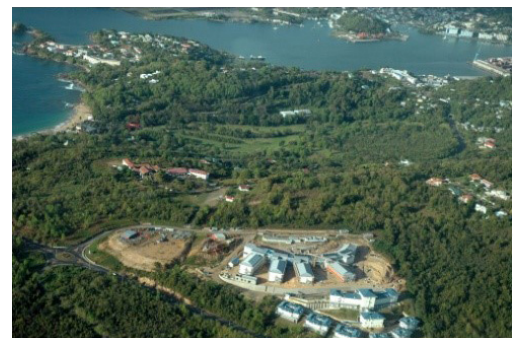
EXPERIENCE IN URBAN & REGIONAL PLANNING

ACE has a wide experience in planning schemes for both public and private clients, extending from conceptual through to detailed and implementable master plans at local, regional and national levels.

ACE's experience in urban and regional planning includes the planning of towns and cities, residential areas, housing schemes, commercial and industrial developments, university campuses, touristic and sports facilities, historic and cultural sites, and related infrastructure.

The consultancy services provided include:

- Policy analysis and formulation
- Urban, rural and regional development studies
- Land-use and zoning studies
- Technical, feasibility and economic studies
- Environmental and social impact studies
- Transportation and traffic studies
- Site planning and infrastructure
- Conceptual planning
- Detailed master planning
- Implementation and phasing strategies
- Advice and monitoring of implementation



EXPERIENCE IN DEVELOPMENT PROJECTS

An area of ACE specialization is in the field of urban development. ACE has successfully provided consulting services for urban development projects exceeding \$2.5 billion in construction cost. These projects are geographically widespread in a number of countries including Algeria, Bahrain, Cyprus, Egypt, Kuwait, Lebanon and Saudi Arabia. They cover a wide range of classifications including town planning, land developments, infrastructure, camps, housing schemes, residential areas, community facilities, and touristic developments.

The consulting services required for these projects covered planning; feasibility studies; market and economic studies; condition surveys; topographic and geotechnical investigations; environmental studies; design; preparation of tender and contract documents; contract administration and construction supervision.

EXPERIENCE IN ARCHITECTURE AND BUILDING PROJECTS

A particular area of ACE specialization is in the field of architecture and building facilities. ACE has successfully provided consulting services for projects in these fields exceeding \$0.75 billion in construction cost. These projects are geographically widespread in a number of countries including Algeria, Bahrain, Cyprus, Egypt, Kuwait, Lebanon, Qatar and Saudi Arabia. They cover a wide range of classifications including residential, commercial, community, public religious, educational, medical, recreational sports, touristic and other functions.

The consulting services required for these projects covered planning; feasibility and economic studies; condition surveys and rehabilitation; environmental studies; topographic and geotechnic investigations; programming; furniture, furnishing and equipment; design; preparation of tender and contract documents; and construction supervision.

The basic ingredient of architectural design consists of two elements, mass and space. The essence of design is the interrelation between these two. In our culture, the preponderant preoccupation is with mass and to such an extent that many designers are "space blind".



Awareness of space goes far beyond cerebral activity. It engages the full range of senses and feelings, requiring involvement of the whole self to make a full response to it possible. Through this sense of connection with a system greater than himself, man achieves aesthetic satisfaction.

This is why at ACE we believe that a conscious expression of space and mass is essential to the highest expression of architecture and environmental design, thus leading to a better living environment.

In addition to the many architectural projects to ACE's credit illustrated overleaf, our firm has a long established practice that spans over four decades and serves in over 15 countries in the Middle East, Africa and Europe. Its list of clients over the years includes the governments of Lebanon, the United States, Qatar and Saudi Arabia, Solidere and several universities in addition to a wide range of public and private institutions, foundations, corporate entities and individuals.

ACE provides a comprehensive service for any scale of development. ACE's professional in-house architects, planners and engineers provide a complete service from inception to completion in architecture; multi-discipline engineering including structural, mechanical and electrical expertise; cost control, quantity surveying, contract documentation and supervision.

From urban, suburban to rural and local traditional facility design, ACE provides solutions for integrated community buildings and public facilities. ACE has a well-established track record in several specialist expertise and fields of architecture and design, including but not being restricted to the following:

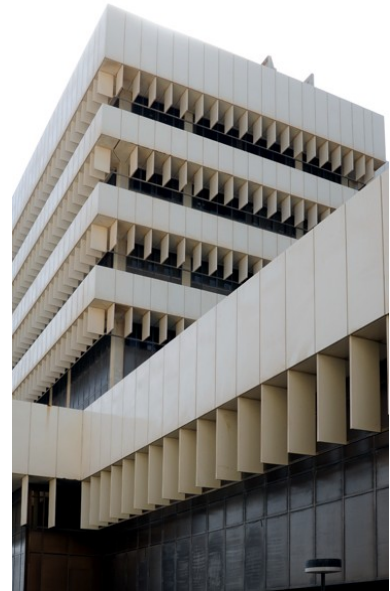
- Medical planning and hospital design,
- High security buildings such as law courts and prisons,
- Urban luxurious residential developments, and
- A wealth of experience in the development of educational facilities namely universities.



In both new construction and redevelopment, ACE's personnel understand the needs of individual communities and strives to integrate designs with the specific and particular needs of the local environment. ACE appreciates the need for economical design and has the ability to translate Client objectives into functional reality.

The spectrum of projects covers but is not restricted to the following:

- ✓ Commercial, residential and public buildings
- ✓ Tourist, hospitality and resort developments
- ✓ General and specialist hospitals
- ✓ Health clinics and specialized medical complexes
- ✓ Universities and polytechnics
- ✓ Colleges and schools
- ✓ Public security, law courts and prisons
- ✓ Public Authority buildings and offices
- ✓ Military and defense establishments



EXPERIENCE IN ROADS, HIGHWAYS AND BRIDGES HIGHWAYS DESIGN

ACE has a widespread experience and specialization in the field of road, highway and bridge projects. During the past 10 years, ACE has successfully provided consulting services for road, highway and bridge projects exceeding \$1,200 million in construction cost. These projects are geographically widespread in a number of countries including Algeria, Bahrain, Iraq, Jordan, Kuwait, Lebanon, Nigeria, Qatar, Saudi Arabia and the Sudan.

They cover a wide functional range including urban road networks, expressways and motorways, interchanges, bridges, tunnels, pedestrian over or under-passes, railway crossings, drainage, utilities, etc.

The consulting services required for these projects covered planning, feasibility studies, economic evaluations, traffic studies, rehabilitation and upgrading, condition surveys, reconnaissance studies, field topographic and geotechnical investigations, materials and soils recommendations, design and preparation of tender and contract documents, contract administration, and construction supervision.

EXPERIENCE IN WATER ENGINEERING

ACE is specialized in the field of water supply and water distribution. ACE has successfully provided consulting services for water projects exceeding \$1.0 billion in construction cost. These projects are geographically widespread in a number of countries including Algeria, Bahrain, Jordan, Kuwait, Lebanon, Nigeria, Qatar, Saudi Arabia and Turkey. They cover a wide range of applications including water sources; conveyance systems; water treatment; pumping and storage facilities; potable, brackish and fire fighting networks; irrigation systems; treated effluent utilization schemes; telemetry and supervisory control and data acquisition systems (SCADA).

The consulting services required for these projects covered planning, feasibility studies, population and water demand studies, condition surveys, leakage investigation and unaccounted-for water control studies, rehabilitation and upgrading, design and preparation of tender and contract documents, contract administration, and construction supervision.

EXPERIENCE IN GROUNDWATER RESOURCES

ACE's Groundwater Resources team has experience of projects in several countries in the Middle East and Africa. In addition to our in-house staff, we have close contact with other local and international renowned specialists, including universities, research institutions and professors, to address the diverse technical issues related to the development of groundwater resources.

The assessment of any groundwater regime is essential to let the resource be properly developed and managed for water supply and consumption. For the initial identification of water bearing strata, it necessitates an appropriate aquifer investigation, including geometry, permeability, storage, recharge, groundwater flow and quality.

The development of the resource requires the design, supervision and installation of appropriate abstraction systems, including boreholes, shafts, tunnel systems and headworks or off-takes. ACE has the capability to handle all of these systems, as well as to carry out the administrative procedures to obtain licenses.

The Management of groundwater resources requires a thorough understanding of groundwater regimes, borehole and aquifer reliable yields and water chemistry. ACE understands the constraints that may be imposed on water abstraction, including water quality deterioration from saline intrusion and the impact of groundwater abstraction on existing rivers and wetlands. We also have extensive experience of rehabilitating existing systems and artificial recharge using surface water or treated wastewater.

The protection of groundwater resources from reductions in quality, or deterioration in quality, is particularly important in many projects. ACE can undertake studies to determine their vulnerability and risk assessments, and develop management solutions to ensure the long-term viability of groundwater resources.

EXPERIENCE IN WASTEWATER ENGINEERING

An area of ACE specialization is in the field of sanitary and wastewater engineering. ACE has successfully provided consulting services for sanitary and wastewater projects exceeding \$1.4 billion in construction cost. These projects are geographically widespread in a number of countries including Algeria, Bahrain, Iraq, Jordan, Kuwait, Lebanon, Nigeria, Qatar and Saudi Arabia. They cover a wide range of applications including sanitary and industrial wastewater collection, gravity and pressure sewerage, pumping, treatment and ozonation, disposal, sea-outfalls and re-use.

The consulting services required for these projects covered planning; feasibility studies; population and flow studies; condition surveys; rehabilitation and upgrading; environmental studies; odour control; design and preparation of tender and contract documents; construction supervision and contract administration.

EXPERIENCE IN ELECTRICAL ENGINEERING

ACE's Electrical Engineering Department has provided design and supervision services for electrical installation projects exceeding 500 Million U.S. Dollar in construction cost. These projects are geographically widespread in the countries of the Middle East, North Africa and the Arabian Gulf.

The scope of services comprised of master planning, techno-economic feasibility studies, condition surveys and investigations, energy management, rehabilitation methodology, design and supervision for the complete range of electrical installations and systems.

The projects comprised power production, transmission and distribution, road and area lighting, safety and security systems, information technology and data network systems, SCADA, low voltage systems and other specialised fields.

EXPERIENCE IN SOLID WASTE MANAGEMENT

ACE has experience in Solid waste Management acquired through its widespread involvement in the field in the Middle East and Europe. The services offered include the following:

- Solid waste Master Plans and strategic Planning
- Source Reduction, recycling and materials recovery
- Transfer Stations
- Sanitary landfill Design
- Landfill Collection and gas control
- Landfill closure and site restoration
- Composting

Effective Solid waste management involves the entire waste cycle: generation, collection, recycling, disposal through land filling and incineration and reclamation of former waste disposal areas. ACE experience covers this range of services.

In Solid Waste Management, ACE's mission is to help clients develop cost-effective solutions, protect public health and ensure environmental integrity.

EXPERIENCE IN CONSTRUCTION SUPERVISION & PROJECT MANAGEMENT

ACE has acquired considerable expertise in the provision of the traditional consulting engineering services of supervision, management and administration of construction contracts. With the advent of Design and Build, DBFO and other turnkey arrangements, ACE has established in-house project management teams that are structured to best serve these various forms of contracts.



ACE provides technical experts to act as Client representatives to advice on all stages of project development.



It also provides facilities management and is able to apply these skills to operation and maintenance of major infrastructure and complex building commissions.



Associated Consulting Engineers has provided contract management and supervision services to projects relating to the following fields:

- Urban and rural developments
- Transportation, airports, ports, roads and highways
- Infrastructure and utilities
- Residential, commercial and public buildings
- Universities and education
- Irrigation and water resources
- Environmental and sanitary engineering
- Hotels and tourists schemes
- Hospitals and health care services
- Military schemes

The scope of consultancy services in this field includes the following:

- Project and program management
- Contract administration
- Budgeting and cost analysis, scheduling and control
- Pre-qualification of bidders, bid analysis and negotiations
- Construction management, coordination and supervision
- Inspection, testing and commissioning
- Quantity surveying and cost control
- Design coordination
- Facilities Management



The ACE supervision staff is fully conversant in the use and customization of the Primavera and Expedition software for project planning and control. The Primavera software is a widely used powerful tool that fulfills the main objective of project planning whereas the Expedition will be used for cost and document control purposes.

The ultimate goal is to complete the project on time, within budget and according to Client's quality objectives.

The project control system will combine these two software with MS Office applications to ensure timely and accurate transfer of information between Client, Consultant and contractors, where standard reports may be generated and viewed anytime, anywhere.

The software facilitates the tasks of planning, controlling and managing the project by the ACE staff in fulfilling the following:

- Planning what needs to be done
- Controlling performance and taking corrective measures for deviations
- Managing Contractor/Client relationship by reporting performance and producing timely information

With the effective use of computerized Project Management programs ACE's mission is to develop a Program Management Plan (PMP) for implementation within the required frame.

Our Project Control System (PCS) will provide an effective method to discover and track all administrative and capital program costs, schedule, quality and performance of all parties involved in the project. The control system will provide an objective and continuous evaluation of the status of the project, identify potential and occurring problems, and provide recommendations to effectively deal with those problems.

One of ACE specialization in supervising construction works is wastewater treatment plants and sea outfalls. The supervision tasks include civil works, the installation of electrical, mechanical and other specialized equipment, the development of testing procedures, staff training and the supervision of operations and management of the plant.



Operation and maintenance related services are also provided by ACE to assist clients in managing the operational aspects of a project during its beneficial life. These services include operation and maintenance studies; project start-up and training of personnel; studies and recommendations on management and organizational set-ups; and supervision of operation and maintenance activities.

Our challenge is to maintain the project within the construction budget and finish it on time, in full accordance with the required standards and in compliance with local and governmental regulations.

SISTER COMPANIES

In 1989, ACE acquired Sir Frederick Snow Ltd. (SFSP), a consultancy-engineering firm based in London, England. The multi-discipline consulting engineering practice which is a subsidiary of ACE Holding was established in 1943 and is internationally recognized in the field of Roads and Highways Consulting Engineering. SFSP has helped to consolidate and expand ACE's operations in Europe and Central Asia and to extend the range of services offered by the Group.

ACE, through SFSP, has acquired in 2003 International Management and Engineering Group Ltd., IMEG, founded in 1964 to undertake projects in the Oil and Gas Industry that include feasibility studies, design, construction supervision, commissioning and training. The Company has performed several projects in the Middle East, Africa, Europe and South East Asia.



The background features a dense grid of small teal dots. Overlaid on this are several large, semi-transparent geometric shapes in various shades of teal and light blue, creating a layered, abstract effect. The shapes are primarily triangular and polygonal, with some having sharp points and others being more rounded.

PROJECTS

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PRINCE ABDULMAJEED BIN ABDULAZIZ AIRPORT



KSA



Client

KSA, General authority of Civil Aviation

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost
45 Million US Dollars

The airport located at 25km south east of Al-Ula city on the Madinah - Al Ula highway. The airport area is 2400 Hectare (24 Million square meter) and the used area is 13750000 m2, the airport is located in a hilly area interspersed with valleys and flat stretches of land sloping in a southwest direction and bonded by hillocks on the north and north east side.

Scope of the works: is to construct and maintain the Prince Abdulmajeed Bin Abdulaziz airport at Al Ula, including the terminal building with a capacity of 190 passenger/hour and the airport expected to serve about 100000 persons, also, serve the tourism traffic for the historic and archeological site of Madain Saleh, the expected traffic of passenger at the airport is 57000 passenger/year & the expected aircraft movement is 1300 flight/year, the airport serve the surrounding area of 250Km radius and the scope of work include the civil works, architectural, electrical, mechanical, fire fighting system, landscaping & hardscaping works and other incidental works.

HAIL AIPORT SAUDI ARABIA



KSA



Client

KSA, General authority of Civil Aviation

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost
100 Million US Dollars

Hail Airport is one of Saudi Arabia International Airports and it is located approximately 307km southwest of the Saudi/Iraq border and 521km northwest of the red sea. This design development mainly comprises the design of the following airport facilities:

- New Terminal Building
- New Administration Building
- Expansion of Air Cargo building
- Expansion of Fire Fighting and Rescue Building
- New Air Traffic Control Building (ATC)
- New Meteorological Building
- Renovation of existing VIP and Royal Pavilion Building
- New infrastructure network and utility services.
- New road network and car parking areas
- New Apron area with the associated service roads
- New Waste Water Treatment Plant
- Soft & Hard Landscaping

BISHA AIRPORT EXPANSION



KSA



Client

KSA, General authority of Civil Aviation

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost
32 Million US Dollars

Bisha Airport is located in the south east of the city of Bisha, the 25 years old airport needed renovation and expansion so that it can accommodate 400 passengers at peak time taking into consideration continuation of airport use during construction. The main elements include:

- Reconstruction of the runway and taxiways pavement
- Replacement of AFL
- Upgrading navigation equipment
- Upgrading storm drainage system
- Remove obstacles
- Expansion of Terminal Building around the existing one
- Expansion of fire rescue building
- New administration building & New cargo building
- Expansion and upgrading of VIP building
- New 13.8 KV switchgear room and Generators
- New mechanical and electrical systems
- New water treatment plant and new sewage treatment plant.

YANBU AIRPORT EXPANSION



KSA



Client

KSA, General authority of Civil Aviation

Consultants

Associated Consulting Engineers (ACE) with ACEC

Yanbu airport is located 300km north of Jeddah, the 25 years old existing airport needed upgrading and expansion to meet the new forecast of 500 passengers at peak. The project comprises of:

- New taxi way
- Upgrading the runway
- New Terminal Building New lead taxiways and new Apron
- New fire rescue building
- New administration building
- New Mosque
- New cargo building
- New Royal Pavillion
- New Control tower & New Meteo. building
- New 13.8 KV switchgear room and Generators
- New mechanical and electrical systems
- New water treatment plant and new sewage treatment plant.



UPGRADING OF 7 REGIONAL AND DOMESTIC AIRPORTS



KSA

Client

KSA, General authority of Civil Aviation

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost

80 Million US Dollars

The Project comprises of upgrading the pavement of 7 regional and domestic airports in Saudi Arabia namely:

- Najran
- Taif
- Hail
- Wajh
- Qassim
- Arar
- Gurayat.

In Najran and Arar, the existing pavement for the runway and taxiway needed total reconstruction including replacement of granular base and asphaltic courses, in the other airports the upgrading of the pavement in the runways and taxiways included milling and adding new thicknesses of asphaltic pavement.

The AFL systems in all airports were replaced.

ABUJA AIRPORT



NIGERIA



Client

Ministry of the Federal Capital Territory

Consultants

Sir Frederick Snow & Partners

Construction Cost

300 Million US Dollars

The Nigerian Government commissioned this study to determine capacity and development options for this major regional airport over the next 30 years. Associated Consulting Engineers was appointed to develop a number of options for Abuja Airport, based on passenger estimates provided. Strategic schemes including additional terminals, runways, taxiways and parking aprons have been prepared in sufficient detail to enable budget cost estimates. The second part of the study involved the comprehensive design for the first phase components of the project which involved the following major elements.

- Study & proposals for new international & domestic terminal buildings,
- new control tower,
- support buildings,
- sewage treatment works,
- water supply,
- power generation,

KUCHING INTERNATIONAL AIRPORT



MALAYSIA



Client

Federal Government of Malaysia

Consultants

Sir Frederick Snow & Partners / ACE

Construction Cost

36 Million US Dollars

Master plan, design and supervision of development of Kuching International Airport, Sarawak. In association with Malaysian Associate Architect and others. Another project that provides a typical example of the airport development capabilities of the company.

This scheme also included additional terminals, runways, taxiways and parking aprons and involved the comprehensive design for all the major components of the project which incorporated the following major elements:

- Study and proposals for new terminal buildings,
- New control tower,
- Support buildings,
- Sewage treatment works,
- water supply,
- power generation,
- infrastructure and car parks.

FIJI DOMESTIC AIRPORTS DEVELOPMENT PROJECT



FIJI



Client

Government of Fiji (financed by EU)

Consultants

Sir Frederick Snow & Partners / ACE

Construction Cost

3 Million US Dollars

Upgrading of 4 domestic airports including feasibility studies, strategic planning, preparation of alter native concepts, detailed design and construction supervision for terminal building expansion including the provision for separate domestic passenger operations and aircraft parking areas. The study incorporated the following aspects:

- Demographic analysis and projection.
- Forecast and modeling of anticipated growth.
- Concept plan formulation.
- Traffic Impact Assessment on surrounding road network.
- Analytical assessment of prevailing transport network problem locations and proposals for immediate and long-term remedial measures.



ZANZIBAR AIRPORT



TANZANIA



Client
Civil Aviation Authority,
Tanzania

Consultants
Sir Frederick Snow &
Partners / ACE

Construction Cost
8 Million US Dollars

The original project involved the planning, design and supervision of runway extension, airfield upgrading and associated facilities at Zanzibar Airport.

Associated Consulting Engineers has recently been appointed by the Ministry of Communications and Transport to investigate the causes of the deterioration of the runway's wearing course and to generally rehabilitate the aircraft pavements of the airport.

The design team is currently on site to carry out the investigations, which include non-destructive pavement tests such as the falling weight deflectometer, and ground radar survey.

The design of the overlay will take into consideration forecasts of aircraft movements and future aircraft types which are likely to operate from the airport.

The project, which is financed by the World Bank, includes design and documentation for international bidding and supervision of contract.

GATWICK AIRPORT DEVELOPMENT PROJECT



UK



Client
British Airport Authority

Consultants
Sir Frederick Snow &
Partners / ACE

Construction Cost
250 Million US Dollars

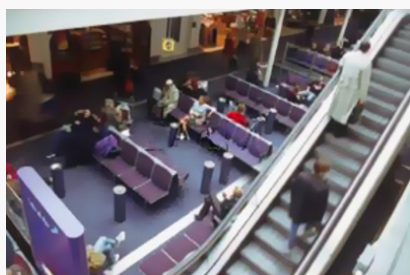
Several development packages including the following main elements:

- New general aviation terminal and maintenance facilities for aircraft cleaner's vehicles
- Visual Control Tower
- ATC for Civil Aviation Authority
- Administration Block
- Gatwick Airport, Stage II
- Airport Maintenance
- Telecommunication Systems
- Planning design and supervision of Stage I Development, including runway, taxiways, aprons, roads, terminal building, railway station, control tower and air cargo terminal,
- Feasibility study on viability of adding an extra storey to the support services building of the Gatwick Control Tower.

HEATHROW AIRPORT



UK



Client
British Airport Authority

Consultants
Sir Frederick Snow &
Partners/ACE

Construction Cost
80 Million US Dollars

Study to evaluate passenger accommodation and apron utilizations.

- Mechanical and Electrical Services - Design and supervision of installation of electrical supply, distribution, lifts and mechanical services at control tower and reorganizations of Air Traffic Control functions.
- Cargo Terminals - Coordinating consultants on planning, design and supervision of construction of cargo terminals incorporating latest mechanical and computerized methods of cargo handling. The mechanical handling system designed by P E Consulting Group. Associated Architects, Engineers and Quantity Surveyors: Gollins, Melvin Ward & Partners; Donald Smith, Seymour and Rooley; Wakeman Trower & Partner.
- Maintenance Area - study, design and construction supervision of wing hangar, aprons, blast walls and offices.

MALDIVES INTERNATIONAL AIRPORT



Client
Maldives Airports Authority

Consultants
Sir Frederick Snow & Partners/ACE

Construction Cost
20 Million US Dollars

Planning, detailed design and construction supervision for terminal building expansion including the provision for separate domestic passenger operations and aircraft parking areas.

The project also includes a new 33m high air traffic control tower on a new site together with Air Traffic Services building and energy centre. Project value 20m US Dollars of which 4 m for roads.

The study incorporated the following aspects:

- Demographic analysis and projection.
- Forecast and modeling of anticipated growth.
- Concept plan formulation.
- Traffic Impact Assessment on surrounding road network.



ACE HEADQUARTERS



Client
ACE Development & Investment Company

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
7.5 Million US Dollars

The project has been named by the National Energy Efficiency and Renewable Energy Action (NEEREA) as a pioneering step towards energy efficiency, renewable energy and green buildings in Lebanon. The Green building will have many features that promote sustainability of which key features are the following:

- North facing façade
- A green roof
- Energy saving HVAC through the use of a VRF system;
- Energy saving lighting through the use of LED lighting
- Underground parking with designated parking for low emission, hybrid and carpooling vehicles;
- Photovoltaic solar panels providing 15,021 KWh/year;
- Solar panels
- Double glazing curtain glass
- All wood utilized in the project will be from a FSC source
- All internal lighting controlled through occupancy sensors
- Water closets and faucets will be water efficient
- A program will also be incorporated within the building for recycling and effectively reducing the waste produced onsite.

UNIFIED CUSTOMS BUILDING



Client
Ministry of Finance, Customs Directorate

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
24 Million US Dollars

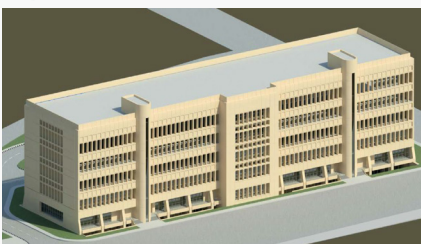
A state-of-the-art building that houses all the Customs Directorate departments, which were spread in various locations in Beirut.

The building encompasses four basements with an area of 8,400 m², the first basement has several store rooms as for the second, third and fourth basements will be used for parking.

The ground floor with an area of 1,700 m² will include an Auditorium, an Exhibition Hall, a restaurant and a laboratory; the first floor, also with an area of 1,700 m², will be used for all mechanical, electrical and telecommunications installations and equipment.

Eleven Floors with an area of 1,360 m² per floor (total 15,000 m²) will be appointed for all the Customs Departments.

OFFICE BUILDING IN SANG COMPLEX



Client
Ministry of National Guard

Consultants
Associated Consulting Engineers (ACE) with ACEC

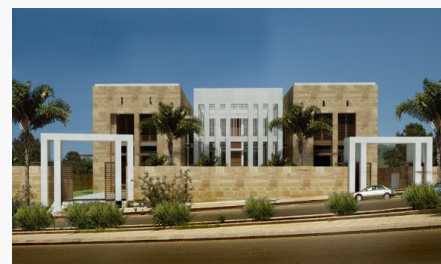
Construction Cost
22 Million US Dollars

The Saudi Arabia National Guard (SANG) project consists of the construction of a multi-storey furnished building on a total plot area of 9,600m².

The components of this project are the following:

- Office building formed by 5 floors and 1 basement with a total built up area of 18,000m².
- Internal Mosque for 400 people
- Miscellaneous work on the remaining area of 6000m² including: service buildings, guard houses, gates, fences/walls, parking areas, green areas and utilities.

KUWAITI EMBASSY COMPOUND



Client
Ministry of Foreign Affairs, Kuwait

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
30 Million US Dollars

The project consists of the design of the Kuwait Embassy Compound in Lebanon. ACE has won the competition for the Concept Design of the project which consists of the Embassy Building, Ambassador's Residence and the Diplomatic Corps Compound encompassing 7 villas.

The project is located on three plots of land in Baabda.

The design is based on a traditional gulf Architecture as well as a recurrent fortress theme. The Embassy Building is disconnected from the road by a stone wall with small apertures "Archers Windows" which emphasize the fortress theme.

It has a courtyard that leads to a "diwaniyah", which conceal the Ambassador's private entrance.



TRILLIUM TOWERS BEIRUT



Client
Mercury Development

Consultants
Associated Consulting Engineers

Mercury Development, Beirut, sub-contracted the preliminary and detailed design aspects of the Trillium residential and commercial towers to Associated Consulting Engineers (ACE). Said towers are located in the prestigious Adlieh district of Beirut.

Project details:

- Two highrise residential buildings of 36 floors and 90 apartments with a total built up area of 45,000 m², also includes gym, club house & sport facilities
- One adjacent low-rise commercial building includes offices and showrooms

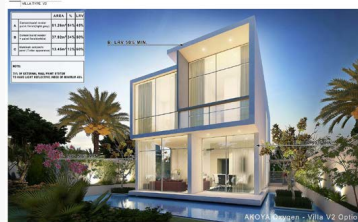
AKOYA OXYGEN - JANUSIA AND CENTAURY CLUSTERS



Client
DAMAC/Front Line Investment Management LLC

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
750 Million Dirhams



Akoya Oxygen-Green is the new Black. The first Green Residential address in Dubai. The project consists of a housing community with an approximately 515.84 hectares covering a development for Villas, Apartments, Townhouses and Community facilities. The project scope comprises the design review and supervision for Phase 2 of Akoya Oxygen for Clusters Acuna, Centaury and Janusia with a total 926 Villas & Townhouse Units.

AL FAHAD 2 RESIDENTIAL TOWER



Client
Al Fahad Holding L.L.C

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
130 Million Dirhams

The building design based on 2 basements, Ground Floor, 1st Floor, Health Club and (2 Swimming Pool Kids + Adult + 23 Typical Residential Floor, Roof and Upper Roof.

The Residential Tower is containing 2 basement car parks, ground floor car parks accommodate 406 cars, main entrance hall and service technical room, the 1st floor consisting 2 Swimming Pool, health Club Sauna, Steam Shower, with the related rest room, equipped Gymnasium, 1 Squash Court, B.B.Q Court, Children Play Area, Terrace (open to sky) and Umbrella, Lounge Chair, Hard and Soft Landscape. The building is divided into two linked (A and B) each block containing (two lifts, one fire staircase) with the related lift lobby in addition of one central main entrance hall and reception, drop by parking at ground floor. One common garbage chute terminated at ground floor in the main garbage room with the necessary garbage container and one compactor.

The Total Built-Up Area is 57,284m² Or 616,374 sq.ft

AL FAHAD 1 RESIDENTIAL TOWER



Client
Al Fahad Holding L.L.C

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
90 Million Dirhams

It is a Residential Tower consisting of 3 basement levels, 4 car parks, MEP equipment, ground floor, 24 floor, roof & upper roof.

- The ground floor consists of the main entrance of the building, emergency staircases, guest lift and service lift. It also provides shaded car parks for visitors.
- The first floor is provided with health club, swimming pool, sauna steam and gym with related appropriate facilities.
- The second floor until the 22nd floor are residential flats consisting of 1/2/3 bedrooms.
- The 23rd & 24th floor are consisting of 6 large apartments (duplex flats).
- The 23rd floor is provided with a living dining room of the flat with related kitchen.
- The 24th floor is provided with 4/5 bedrooms with the related internal staircase.

SHORELINE APARTMENTS BUILDINGS



Client
Nakheel

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
1.5 Billion Dirhams

The Shoreline Apartments project at the Palm Jumeirah Island is a prestigious project located on the Trunk of the Palm. It is consisting of 20 luxurious Residential Buildings with five Club Houses.

The buildings heights are as follows:

- 2 Basement Floors – Parkings (240 cars).
- Ground Floor – Residential.
- 7, 8, 9 or 13 Typical Floors – Residential
- 2 Floors Penthouse

The Club House consists of:

- Restaurants
- S.P.A. & Gym.
- Multipurpose Hall
- Swimming Pool

The Approximate Total Built-up Area is: 730,531 sq.m.

PRIMELAND OFFICE BUILDING



Client
Primeland

Consultants
Associated Consulting Engineers (ACE)

Design Phase Services (Full Design of 65,000m² 6B+G+M+10F)

- Prepared detailed design for Architectural, Structural and External Civil Works and elaborated drawings.
- Submit and follow up of Utilities approvals.
- Coordinate with the MEP designer
- Submit and follow up the approval of DC2.
- Preparation of Bills of Quantities.

AL WATANIYAH TOWER



Client
Abu Dhabi Investment House

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
100 Million Dirhams

The office tower will provide approximately 13,530 m² office space in a fully glazed tower, offering a direct view across the city and the Park.

It has 7 Basement Cars Parks, Ground Floor, Spacious and Luxurious Entrance Hall, accommodating Bank facilities, Mezzanine Floor (Rentable Office), Plant Floor for Mechanical Equipment, Typical Floor from 2nd to 19th Office (4 Companies), Roof (Services) and Upper Roof.

Al Wataniyah Office Tower is a significant opportunity to develop a Landmark Building in Abu Dhabi.

Al Wataniyah Office Tower provides state of the art commercial office accommodation in contemporary, international style that represents the future of ADIH.

MIX TOWER



Client
MZ Tower

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
120 Million US Dollars

The Tower is designed to be one of the iconic towers in Qatar.

It is raised at Lusail Marina front residential district RR/Mix/01 on 93,000m² plot area.

It has a mix use function: residential and commercial. It is composed of three basements, ground floor and 36 upper floors.

The basements are dedicated for tower services and parking spaces while the ground and the first 3 floors are reserved for commercial use, restaurants, leisure centers, shops, etc. The remaining floors are meant for residential use.

The tower has a total build-up area of around 85,000m³ distributed on 40 floors including basements.



RESTORATION & EXPANSION OF SRF IN KING FAISAL NAVAL BASE



KSA



Client

Saudi Royal Navy Forces

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost

4 Billion SAR

The Scope of services included field investigation, master planning for the expansion, detailed design and preparation of tender documents including tendering conditions, contract conditions, specification, bills of quantities and drawings.

The scope of restoration works comprises:

1. Restoration of existing piers (1 to 6), existing wharfs (A to L) and ammunition pier which were built on piles by total removal of decks, repair and cathodic protection for piles and reconstruction of decks and new shaft to strengthen the piers against seismic activities.
2. Restoration of existing syncrolift and related transfer pit and dry dock area. And upgrading by widening the platform and adding new 14 hoists. The total is 56 hoists.
3. Restoration of full mechanical and electrical networks in the Ship Repair Facilities (SRF) of the Base.

The scope of expansion works comprises of:

1. New 4 piers and wharfs 200 m long, 150m spacing. 2 alternatives suspended slab on piles and quay wall on both sides with reclamation and rigid slab.
2. New Ro-Ro berth 55m long.
3. New dry dock (excavated) 180m long, 40 m wide and -11.5m CD depth.
4. Marina for maintenance and service boats, berthing length 1000m
5. Dredging around 10 million m³ for widening approach channel and for new piers.

YANBU COMMERCIAL PORT



KSA



Client

Saudi Ports Authority

Consultants

Associated Consulting Engineers (ACE) with ACEC

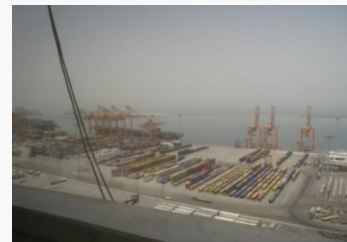
Project Details:

- Design of the quay wall to receive oil tankers & cargo ships
- Design of back-yard facilities
- Rough Grading of Project Site
- Design of associated infrastructure utilities

EXPANSION OF DAMMAM CONTAINER TERMINAL



KSA



Client

International Port Services

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost:

200 Million US Dollars

The scope of services included concept study, detailed design, preparation of construction tender documents and construction supervision.

The scope of works comprises of strengthening the quay wall for the new design vessel, replacement of crane rails and reconstruction of their foundations, new electrical MV switchgear for the new 6 STS cranes, CFS building, hazardous cargo building.

AL-WAJH PORT



KSA



Client

Saudi Ports Authority

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost

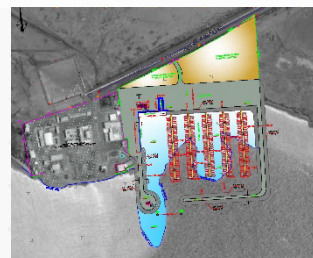
350 Million SAR

The Project comprises of new passenger port including navigation channel, quay wall, terminal building, administration building and related facilities.

FIVE FISHING MARINAS



KSA



Client

Ministry of Agriculture

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost:

600 Million SAR

The Project comprises of 5 new fishing marinas in Duba, Wajh, Lith, Qahma and Al-Muwassam

Each marina includes dredging and reclamation works, wave breaker and coast guard building, quay wall for loading and unloading, staging stages for berthing, fuel station, fire water pumping station, and pumping station.



JEDDAH ISLAMIC PORT EXPANSION PROJECT



KSA



Client

Ports Authority of Saudi Arabia

Consultants

Associated Consulting Engineers (ACE)

Construction Cost
250 Million US Dollars



The project involved the reclamation of more than one million square meters of land and the creation of two harbor basins for vessels of 80,000 DWT, quay walls, public buildings and industrial facilities with complete infrastructure including roads; paved areas; power distribution; lighting; telecommunications; fuel systems; utilities and services; and landscaping.

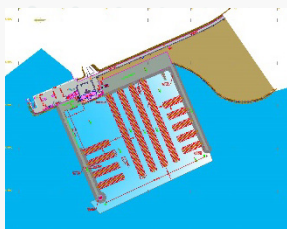
The main elements of the project include:

- Northwest Extension, comprising:
 - Multipurpose Terminal: 830,000 m² in area.
 - Heavy Loads Area: 100,000 m² in area
 - Passenger Terminal: 80,000 m² in area with 310m of 14m berths.
 - Car Terminal: 175,000 m² in area having 50m of ro-ro ramps (berths) with storage and parking areas.
 - Service Harbor: 109,000 m² in area.
- Livestock Terminal: 112,000 m² in area having 450m of berths, complete facilities for berthing of ships, unloading, sorting, feeding, storing and stripping of livestock.
- Fruit Terminal: new facility located on existing berths, capable of receiving and processing one million tons per year of fruit, vegetable, frozen and semi-frozen meats.
- Administration Complex and Other Building: Administration Building: 23-storeys, 118m high with a total floor area of about 26,000 m². Training Centers, 5 Control Points, Container Terminal Administration Building, Terminal Offices.
- Control Tower: A 125m high landmark located at port entrance.

TWO FISHING MARINAS



KSA



Client

Ministry of Agriculture

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost: 130 Million SAR

The Project comprises of 2 new fishing marinas in Qatif and Azzure in the Eastern Region of KSA.

Each marina includes dredging and reclamation works, wave breaker and coast guard building, quay wall for loading and unloading, floating stages for berthing, fuel station, fire water pumping station, water tank and pumping station.

MULTIPURPOSE OIL & GAS 5 BERTHS IN KING FAHD INDUSTRIAL PORT AT



KSA



Client

Ports Authority of Saudi Arabia

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost
1400 Million SAR

Scope of Services includes conceptual design and detailed design for the berths structure which is suspended reinforced concrete decks on piles and preparation of tender documents for construction including specifications, bills of quantities and drawings.

The total length of the 5 berths is 1500m, the berthing depth is -20.0m CD and could be deepened to -25.0m in future and the top level is +6.55m CD, design vessel DWT 200,000 tons.

4 BERTHS IN KING FAHD INDUSTRIAL PORT, YANBU



KSA



Client

Ports Authority of Saudi Arabia

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost
450 Million SAR

Scope of Services includes conceptual design with 3 alternatives for berth structures (quay wall blocks, quay wall caissons, quay wall on piles) with technical and financial advantages and disadvantages, detailed design for the selected structure (quay wall in blocks) and preparation of tender documents for construction including specifications, bills of quantities and drawings.

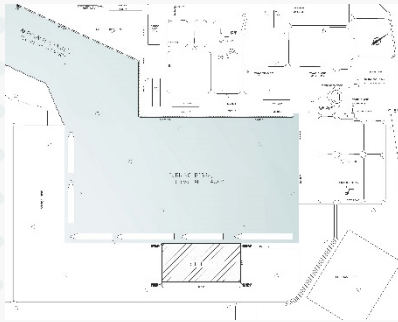
The total length of the 4 berths is 1200m, the berthing depth is -18.0m CD and the capping beam top level is +4.30m CD, design vessel DWT 150,000 tons.



BERTH 11 IN YANBU COMMERCIAL



KSA



Client
Saudi Ports Authority

Consultants
Associated Consulting Engineers (ACE) with ACEC

Construction Cost
180 Million SAR

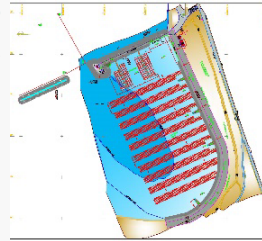
Scope of Services includes conceptual design with 3 alternatives for berth structures (quay wall blocks, quay wall caissons, quay wall on piles) with technical and financial advantages and disadvantages, detailed design for the selected structure (quay wall in blocks) and preparation of tender documents for construction including specifications, bills of quantities and drawings.

The total length of the berth is 400m, the berthing depth is -16.0m CD and the capping beam top level is +3.00m CD, design vessel DWT 100,000 tons.

SEVEN FISHING MARINAS



KSA



Client
Ministry of Agriculture

Consultants
Associated Consulting Engineers (ACE) with ACEC

Construction Cost:
500 Million SAR

The Project comprises of 7 new fishing marinas in Farasan, Madaya, Yanbu, Al-Rayes, Harra, Ummloj and Al-Khobar.

Each marina includes dredging and reclamation works, wave breaker and coast guard building, quay wall for loading and unloading, floating stages for berthing, fuel station, fire water pumping station, water tank and pumping station and lighting.

BEIRUT PORT EXPANSION MASTER PLAN



LEBANON



Client
Beirut Port Authority

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
400 Million US Dollars

A major detailed master planning study for the expansion of Beirut Port from Beirut River to the West up to Nahr el Mout river to the East involving a gross area of around 1.4 sq Km of which 1.2 sq Km shall be reclaimed from the sea.

The study involved the following major components:

- Expansion of port facilities so as to incorporate new fuel-tank farm, fuel carrier/tanker docking and traffic management facilities.
- Expansion of dock # 16 and relocation of existing land-uses.
- Land-use assignment to relocate and accommodate the following facilities:
 - Existing slaughter facility
 - Public Souk / Market Complex
 - Fishermen Port facilities
 - Solid Waste Treatment facility
 - Military Base of Bay # 1
- Environmental Improvements including site allocation for Sewage Treatment Plant & the Borj Hammoud dump area and its Management.
- Physical Master planning of expansion area East of Beirut Port from Nahr Beirut to Nahr El-Mout.
- Physical Master planning of area south of Beirut Port between Nahr Beirut to the East and El-Quarantina area to the West including the Planned Motorway to the south.

UPGRADING JEDDAH ISLAMIC PORT (PHASE 3)



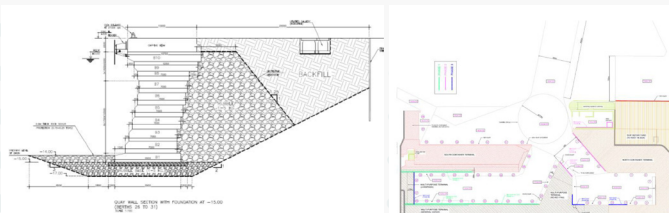
KSA



Client
Saudi Ports Authority

Consultants
Associated Consulting Engineers (ACE) with ACEC

- Deepening approach channel
- Deepening berths 1,2 and 3 to -18mCD
- Reconstruction of berths 20 and 21 to -14m CD
- Deepening berths 26 to 31 to -14m CD
- Deepening berths 14 and 15 to -8m CD
- Deepening berths 11 and 12 to -12m CD





TRIPOLI PORT INDUSTRIAL ZONE



LEBANON



Client

Office d'Exploitation du Port
de Tripoli - OEPT

Consultants

Associated Consulting
Engineers (ACE)

Construction Cost
20 Million US Dollars

The project consists of the creation of an Industrial Park in the Tripoli Port area to promote and encourage the development of small and medium sized industries in the region.

The total area of the project is around 25 Hectares, all of which are reclaimed land from the sea that include an area of 7 Hectares of solid waste dump requiring 10 years to settle and be suitable for development and construction.

The Park will have its own amenities and infrastructure networks including water, wastewater, electricity and telephone.

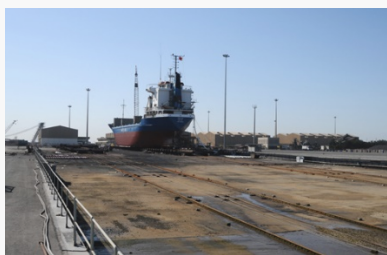
It will have ample parking facilities for employees, workers, clients and visitors. It will contain the following facilities:

- Administrative building.
- Workshops for general repairs and maintenance.
- An exhibition hall.
- A fire-fighting station.
- A restaurant/cafe and a gas station.
- Quay walls and sea defenses.

ASRY MARINE SLIPWAY



BAHRAIN



Client

Arab Shipbuilding Repair Yard

Consultants

Associated Consulting
Engineers (ACE)

Construction Cost
20 Million US Dollars

The Site is located at ASRY Ship Yard located in the Kingdom of Bahrain. The new Marine Slipway is located within the ASRY Basin, north of floating dock.

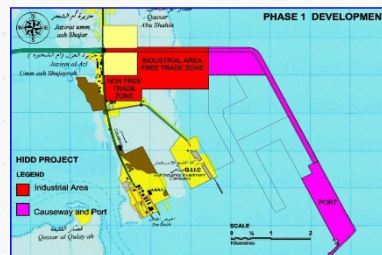
The Project consists of construction of a marine facility to launch vessels or to pull / haul ashore vessels to take berths and have essential maintenance or repair works. The Slipway comprises of track supports on reinforced concrete beams with bored piles and the vessels are docked on cradles running on the rails and there is a winch system(s) supported by capstans and sheave blocks for up-hauling / down-hauling vessels.

With this arrangement of construction, ASRY can accommodate four vessels at one time using the twin slipways. The way the new slipways have been arranged is of the vertical curve design, allowing two vessels to be simultaneously berthed, end-to-end on each slipway. Both slipways are in parallel with a total width of the slipway of 64 meters. The overall standing area for the vessels is now 275 meters. The maximum length of vessels will be 140 meters and the maximum breadth 20 meters with a displacement of 5,000 tonnes maximum per vessel.

KHALIFA BIN SALMAN PORT AND INDUSTRIAL AREA AT HIDD-PHASE I



BAHRAIN



Client

Ministry of Works

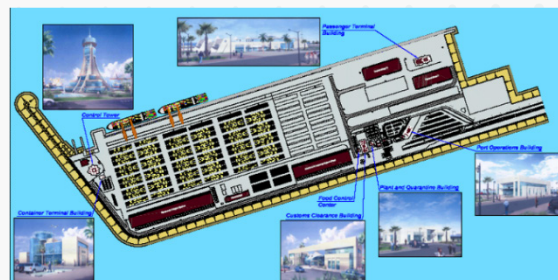
Consultants

Associated Consulting
Engineers (ACE)

Construction Cost
450 Million US Dollars

The scope of the project comprised the planning, design, construction supervision and contract management of Phase I of the development. Phase I of the development has an approximate area of 470 hectares and comprised the following main components:

- Reclaimed land of 240 Ha using around 15 million cubic metres of material forming the Industrial Area.
- 230 Ha of reclaimed land to the east of the Industrial Area using around 21 million cubic metres of dredged material forming the Free Trade Zone (90 Ha), the port area of 110 Ha and to provide a corridor for the Port access roadway.
- 1.8 km of concrete block quay wall with 15m depth of water for the container terminal and general cargo handling.
- 2 No. Ro-Ro ferry berths and 2 No. piled jetties forming the Small Craft Berths.
- Over 7 km long rock-armoured bund along the northerly and easterly boundaries of the development and a breakwater at the south end of the Port with concrete wave-wall.
- Port buildings including Harbour Master's Office & Control Tower, Container Terminal Building, Container Freight Station, Transit Sheds, Aluminium Export Shed, Workshop, Port Operation Building, Passenger Terminal, Port Gate, Customs Clearance in addition to other buildings. The total area of port buildings is approximately 80,615m².
- Crane beam constructed on bored cast-in-place concrete piles having a total length of 1.5 Km and crane rails.
- Container terminal having an approximate area of 72.5 Ha constructed with heavy duty pavements using block paving on a lean mix concrete base.
- Industrial Area buildings including Gatehouses, Medical Centre, Business Centre, police Station, Administrative Offices and Fire Station.
- Main Administration Building with a total built-up area of approximately 6,600m² and Main Customs Building with an approximate area of 7,400m² for the operation of the Industrial Area.
- A Sewage Treatment Plant which comprises primary, secondary and tertiary treatment facilities.
- All infrastructures for Phase I including roads and access roads, water distribution systems, irrigation networks, wastewater and storm drainage networks, electrical, telephone and telecommunications networks and cabling.





REHABILITATION OF KING FAISAL NAVAL BASE



KSA



Client

Royal Saudi Naval Forces

Consultants

Associated Consulting Engineers (ACE) with ACEC

The scope of works includes:

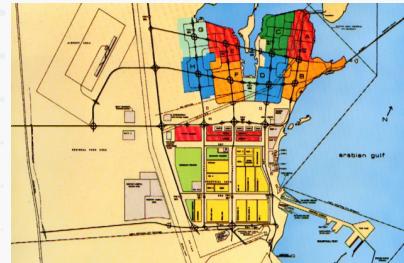
- 1- Rehabilitation of existing Infrastructure.
- 2- Design of new Infrastructure to satisfy the future development and can be summarized as follows:

- Topographical and Geotechnical surveys.
- New Road Works
- New Electrical MV Network (New 67 MVA Switchgear Building, 142 Substations, 153 Km MV cables, 12 Km HV cables).
- New Electrical LV Network (83 Lighting Panels, 4399 Street Lighting Poles, 132 Km LV cables, 30 Backup Generators, 70 Km LV cables)
- New Telecom Network (1452 Km Optical Fiber cables)
- New LC Network (6 MFACP, 130 Km Optical Fiber cables)
- New Potable Network (86 Km Pressure pipes, 496 Fire Hydrant).
- New Sewer Network (95 Km of sewer gravity lines, 8 Km of sewer pressure lines, 32 lifting stations).
- New Drainage Network (176 Km Channels, 14 Km Interceptors, 13454m³ ponding areas).
- New Sewage Treatment Plant (4x2500m³/day capacity) using BioShaft Technology Advanced Attached Growth Process.
- New Desalination Plant (10000m³/day capacity) using RO Technology.

INDUSTRIAL PARK FOR SECONDARY INDUSTRIES



KSA



Client

Royal Commission for Jubail and Yanbu

Consultants

Associated Consulting Engineers (ACE)

Construction Cost

155 Million US Dollars

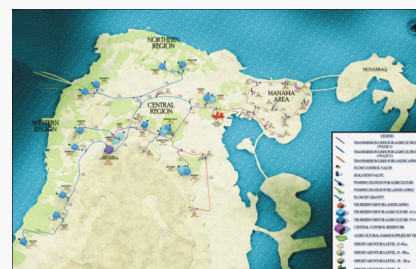
The main element of the infrastructure development Include:

- Potable water and firefighting system comprising in excess of 98 km of network, pumping and storage facilities - system capacity 5,600 m³/hour.
- Seawater cooling system supplying the industries needs with a capacity of 118,000 m³/hour; return flow feeds back into the pumping station which pumps it back into the main canal.
- Sanitary sewerage system comprising 58 km of network and pumping facilities - System capacity 850 m³/hour.
- Industrial wastewater collection system comprising 38 km of network and pumping facilities - system capacity 8,000 m³/hour.
- Reclaimed treated effluent irrigation system comprising 520 km of network and pumping facilities - system capacity 10,000 m³/day.
- Stormwater drainage system comprising intels, gulleys, channels pipe and box culverts and related works.

PRODUCTION & UTILIZATION OF TREATED SEWAGE EFFLUENT PH 2



BAHRAIN



Client

Ministry of Water, Sanitary Engineering Projects & Planning (SEPP)

Consultants

Associated Consulting Engineers (ACE)

Construction Cost

135 Million US Dollars

The scheme provides for disinfection facilities by chlorine and ozone. It also provides transmission Pumping and storage systems from the treatment plant to the various areas where effluent is intended to be utilized.

The Scheme was upgraded to treat an average daily flow of 200,000 m³/day to serve about 550 farms located in the Northern and Western regions of Bahrain, along with landscape irrigation of many major roads and highway. Around 3000 Hectares of agricultural land will benefit from this scheme. Based on guidelines developed by California State guidelines for unrestricted reuse, the high quality treated effluent is acceptable for use with any type of agricultural crop.

The high quality effluent will contribute eventually for the replenishment of the depleted aquifers in Bahrain.

The facilities include secondary and tertiary treatment, sludge treatment, pumping stations and treated effluent transmission lines, distribution lines, landscape irrigation lines and farm connections.

BAGHDAD COMBINED MAIN SEWERS



IRAQ



Client

Amanat Al-Asimah – Baghdad Sewerage Board

Consultants

Associated Consulting Engineers (ACE)

Construction Cost

73 Million US Dollars

A Major project intended to construct a combined sewerage scheme for the highly developed communities of al marifa al Hamra, Al Fardous and Kadisiyah in Baghdad city.

The Major elements of the scheme included 115 Kilometers of gravity trunk lines and 25 kilometers of local collector rider sewers, ranging in size from 600 mm to 2500 mm in diameter.

MEKKAH & JEDDAH WASTEWATER / WATER RE-USE SCHEME



KSA



Client

Water & Sewerage
Department of the
Western Region

Consultants

Associated Consulting
Engineers (ACE)

Construction Cost

85 Million US Dollars

The planned effluent utilization includes: irrigation of agricultural and landscaped areas; industrial water needs; various public and municipal needs including street cleaning, fire fighting. The project involved implementation of tertiary wastewater treatment, transmission systems and storage facilities. The tertiary wastewater treatment for both cities, included chemical coagulation, sedimentation, recarbonation, filtration, ozonation and chlorination. Additionally a reverse osmosis process was incorporated in Jeddah in view of the high salinity (6,000 - 7,000 ppm) of its wastewater.

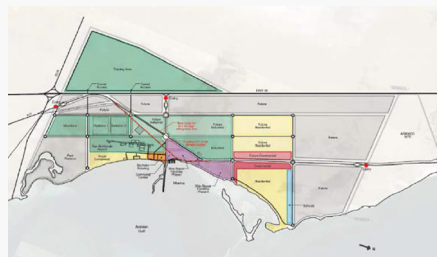
The transmission systems included:

- Pumping installations,
- Conveyance mains, with all related appurtenances, for transport of the treated effluent from the treatment facilities to storage reservoirs at strategically selected high points in the cities,
- Storage facilities that incorporated a number of ground tanks each providing storage for 50,000 cubic meters of treated effluent.

REHABILITATION OF RAS MECHAB NAVAL BASE IN EASTERN REGION



KSA



Client

Royal Saudi Naval Forces

Consultants

Associated Consulting
Engineers (ACE) with ACEC

Construction Cost

2 Billion SAR

The Project is to provide Consultancy Engineering services and studies to prepare a general master plan for Ras Mechab Naval base located in the eastern province, 35 Km south of Ras Al Khafji near the Kuwait-Saudi Arabia border along the Arabian Gulf and currently cover an area of 53Km². The base anticipates growth and high demand to expand to reach after future acquisition an area of 250 km².

The scope of works is divided into six packages:

1) Marine Excavation, filling grading and dredging works for the Basin navigation Channel.

2) SRF Area Works includes:

- Wave breakers and Navigation Aids
- Underwater Infiltration Protection System
- 3 New Piers for 30 Ships 40m Long.
- Rehabilitation of Existing Piers.
- Floating Pontoons for Small Boats.
- Slip Away and Lifting Crane.
- Shaded Basin for 5 ships 40m Long.
- Dry Dock Shipyard.
- SRF Zone Site Plan
- New Seawater Pumping Station & Air Compressor for Fire Fighting
- New Diesel Tanks and Pumping Station (PS1)
- New Potable Water Tank (2000m³) and Pumping Station (PS2)
- New Drainage network consisting of 120m of Channels.
- New Irrigation System consisting of 900m of Pipes.
- New Electrical MV, LV, Telecom & Networks

3) Road and Infrastructure Works:

- Rehabilitation of existing Infrastructure.
- Topographical and Geotechnical surveys.
- New Road Works.
- New Seawater Intake Pumping Station for Desalination
- New Diesel Farm
- New Desalination Plant
- New Potable Water Network
- New Sewer Network & New Sewage Treatment Plant
- New Drainage Network
- New Irrigation System
- New Electrical MV, LV, Telecom & Networks

4) Building Works:

- a. Ships Administration Building / b. Workshop 2400 m²
- c. Warehouse 3000m² / d. Cold Store. e. Ship Workshop 3000m²
- f. Central Fire Station. / g. Port Administration Bldg / h. Guard Houses.

5) Buildings, Utilities and Infrastructure Works in Airport:

- a. Helipads. / b. Workshops for Helicopters. / c. Helicopter Hangars.
- d. Fire Station in Airport / e. Diesel Tanks & Pumping Station-2
- f. Underground Water Tank for Helicopter Hangar.
- g. Compressor Room for Helicopter Hangar.

6) Munitions Works: a. Explosive Warehouses. b. Ammunition Stores.

WATER SUPPLY & SEWERAGE SYSTEMS FOR AL KHOBAR & DAMMAM



KSA



Client

Ministry of Interior &
Municipal Affairs

Consultants

Associated Consulting
Engineers (ACE)

Construction Cost

160 Million US Dollars

The main elements of the water supply and firefighting schemes include

- Tapping the underground aquifers for water extraction
- Treatment and chlorination of water
- Distribution networks
- Pumping facilities
- Storage reservoirs

The main elements of the sewerage schemes include:

- Collector and trunk sewers
- House connections
- Pumping facilities and pressure mains
- Wastewater treatment facilities.



NEW PUMPING STATION AT JAHRA AND A NEW TREATMENT PLANT IN KUBD KUWAIT



Client

Mushrif Trading and Contracting Company

Consultants

Associated Consulting Engineers (ACE)

Construction Cost

210 Million US Dollars

The Project consists of the Design, Construction Operation and Maintenance of a new deep main Pumping Station at Jahra (capacity 375,000m³/d), 15 km twin pressure main (1400 mm dia.) in addition to Wastewater Treatment Plant at KUBD to treat 180,000m³/d in Phase 1 and 270,000m³/d in Phase 2, Effluent Transmission Lines and Outfall Line.

INTERNATIONAL CITY INFRASTRUCTURE



Client

Nakheel

Consultants

Associated Consulting Engineers (ACE)

Construction Cost

250 Million Dirhams

The China Town Project is an 800 Ha property along the Emirates Road in Dubai. The Project area serves a mixed Residential and Commercial Development comprising 320 low rise Residential Buildings, 37 medium rise Residential Buildings, and 12 high rise office towers. It will also include about 500,000m² of built up area of commercial facilities, a 180,000 m² Commercial Building (China Dragon Mart), a Commercial / Residential Forbidden city and the Lake Residential Neighborhood as well as reservations for educational, religious and sport amenities. The project will house 22,000 residential units which will include several towers: a China Town, Forbidden City, England, Russia, Italy, Spain, France, Greece ... The infrastructure Contract included the following;

- 7 million cubic meters in rough grading works.
- Traffic impact study.
- Finalization of the project's Master Plan.
- Road network comprising 13 km of Dual Roads, 38 kms of single carriageway roads and parking areas
- Storm drainage network.
- Street and area lighting.
- Soft and hard scape.
- Irrigation water network and storage / pumping facilities.
- Coordination with Dubai Electrical and Water Authority
- Coordination with Dubai Internet City (DIC)

REHABILITATION OF AL TAIF UNIVERSITY



Client

Al Taif University

Consultants

Associated Consulting Engineers (ACE) with ACEC

The Project is to provide Consultancy Engineering services and studies to prepare a general master plan for Al Taif University located in SAYSAD Area in

Taif city and cover an area of 17Km².

The scope of works includes:

- Design of Infrastructure works inside the University Campus to satisfy the future development and can be summarized as follows:
- Topographical and Geotechnical surveys.
- New Road Works, Traffic Study, Road Assessment Report.
- New Electrical MV Network (New Switchgear Buildings (2x70MVA, 1x40MVA, 1x35MVA), 58 Substations, 14 Km MV cables).
- New Electrical LV Network (209 Lighting Panels, 8939 Street Lighting Poles, 274 Km LV cables)
- New Telecom Network (258 Km Optical Fiber cables)
- New Potable Network (107 Km Pressure pipes, 847 Fire Hydrant, 2 Pumping Stations, 3 Strategic Tanks).
- New Sewer Network (70 Km of sewer gravity lines, 3 Km of sewer pressure lines, 2 Pumping Stations).
- New Drainage Network (195 Km Channels, 5 Km Interceptors, 35m Culverts).
- New Sewage Treatment Plant (6x2500m³/day capacity) using BioShaft Technology Advanced Attached Growth Process.
- New Irrigation Network (53 Km Pressure pipes).

MUSAFFAH-EAST INFRASTRUCTURE



The Musaffah-East, Abu Dhabi, U.A.E. Water distribution, sewerage and drainage project, commissioned by the Abu Dhabi Municipality extends on a total of 3000 hectares.

It also includes the Mafraq Industrial Area with an additional area of 1000 hectares. The network is connected to a deep interceptor collector up to 22 m in depth, 11 Km long with 4 pumping stations.

The main pumping station is 25 m deep with a flow up to 3.5 m³/s.

The project also includes two pressure lines with a length of 9 Km each with 1300-mm diameter. Construction requires 13 Km of micro tunneling with depths ranging from 13m to 20m.

The major components of the project may be summarized as follows:

- Water supply and irrigation system including distribution lines down to 150mm diameter pipes, reservoirs, pumping stations and chambers.
- Surface water drainage including subsidiary and trunk lines, pumping stations, detention basins, outfall structures.
- Sewerage facilities, including house connections, subsidiary sewers and pumping facilities.

Client

Abu Dhabi Municipality – Sewerage Projects Dept. (SPC)

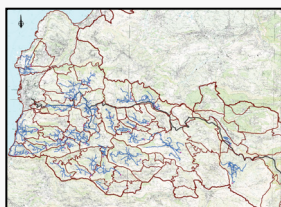
Consultants

Associated Consulting Engineers (ACE)

Construction Cost

200 Million US Dollars

RESERVOIR, DISTRIBUTION NETWORK, TRANSMISSION LINES & WELLS IN NORTH LEBANON, BATROUN CAZA



Client
Ministry Of Energy & Water

Consultants
Associated Consulting Engineers (ACE)

- Design of 300km of potable water distribution networks,
- Nine pumping stations,
- 30km of pressure lines,
- Six water reservoirs and
- Nine water wells.

LEBANON, BEIRUT CITY SERVICES UPGRADING



Client
Council for Development and Reconstruction

Consultants
Associated Consulting Engineers (ACE)

The first Contract includes the rehabilitation of the Beirut Coastal Corniche starting from St. Georges Hotel all the way south to the Ramlet El Bayda with all associated infrastructure utility services. It is of major function within Beirut roads network serving the traffic flowing within or through the capital and its prominence is mainly attributed to the touristic role of the area overlooking this street and forming the main sea front of the city.

The second contract includes the design of 400m tunnel on Saeb Salam Boulevard with the rehabilitation of this major road and upgrading many other existing streets located in the heart of the City of Beirut with all associated infrastructure utility services.

The objective of the project is to address the urgent need to improve and rehabilitate sections of Beirut City's infrastructure (storm water drainage, sewerage, water network, etc.), asphalt, sidewalks and street amenities such as lighting, landscaping, road marking and traffic signing and other urban furniture elements important to the good functioning and the aesthetics of the Capital's streets and public right of ways.

The urge to upgrade the city services arises from the deterioration due to age, congestion and maintenance deficiency accumulated over the years of consumption of the existing systems in addition to the unavailability of some systems.

ENERGY CITY QATAR



Client
Energy City Qatar
Gulf Investment House

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
225 Million US Dollars

Energy City Qatar (ECQ) located within the prestigious Lusail Development, north of the City of Doha, Qatar, will be the Gulf's first energy business center catering exclusively the commercial, technical and human resource needs of the Oil & Gas industry operating in the region, with state-of-the-art facilities and services to the benefit of the participants, region and the entire global energy spectrum.

The project comprises the development of roads & all associated infrastructure utilities including, but not limited to the followings:

- Roads including Traffic Signing , Traffic Control System and Pavement Markings
- Surface Water Drainage system with one pumping station
- Foul Sewer network
- Potable Water network
- Irrigation system
- HV & LV Electrical Cabling networks including Substations
- Street Lighting network with the installation of Multifunction Street Lighting Poles in compliance with the requirements of Lusail Development
- District Cooling Network
- Telecommunication & IT Networks.
- Soft & Hard Landscaping Works

NORTH BEIRUT & NORTH METN COLLECTORS



Client
Council for Development & Reconstruction CDR

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
45 Million US Dollars

The project involved 2-trunk lines: one from Dbayeh to Doura Pretreatment works serving North Metn sector, and one from Manara to Doura Pretreatment works serving West Beirut sector. Project called for (17) km trunk lines, and 5 pumping stations ranging in capacities between 75 lps and 2500 lps.

The project involved 17km of reinforced concrete trunk lines; intensive micro-tunnelling works, for 1200 diameter and 1800 pipelines including two crossings under Beirut and Nahr El-Mout rivers, to avoid disruption to expressway traffic and 5 lift stations to avoid excessive excavations in narrow streets and also included sewage pumping stations with odor control.



KING FAHED NAVAL ACADEMY, AL QADIMAH



KSA



Client

Ministry of Defense, Saudi Royal Navy Forces

Consultants

Associated Consulting Engineers (ACE) with ACEC

Construction Cost

960 Million US Dollars

The objective of this project is to develop the 10 Km² naval property at Al-Qadimah into a naval military academy port.

This development incorporates 43

types of facilities with the following main facilities:

- Academy Head Quarter Bldg.
- Battalion Command Bldg.
- Simulation Bldg.
- Educational Bldgs.
- Training and Administration Bldgs and Facilities.
- Shooting Ranges.
- Quarters for Three (3) Infantry Battalions.
- Housing with associated services and recreational facilities for 2000 Naval Academy Students.
- 1400 housing units for Naval Academy Staff with their Families.
- Military Port with its Administrative, Operating,
- Supporting and Servicing Buildings and Facilities.
- Networks and Facilities for all necessary
- Infrastructure.



SALWA RESORT



QATAR



Client

Hala Group

Consultants

Associated Consulting Engineers (ACE)

Construction Cost

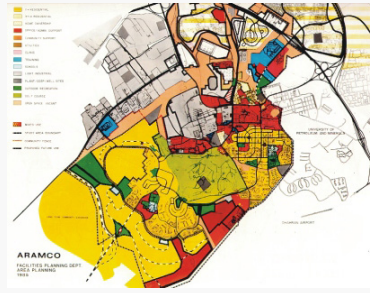
171.4 Million Qatari Riyal

The resort is spread over approximately 200,000 square meters, located in a prime location of Doha, abutting the Salwa Road; it has an Aqua Park on the adjoining site. It includes a Luxurious 5 Star Hotel with 78 rooms & suites, outdoor and indoor swimming pools & spa, a choice of 29 villas contains 90 residential units, luscious landscaped lagoon areas, green parks, mosque, 3 buildings for staff accommodation, club house...

DHAHRAN LAND-USE MASTER PLAN



KSA



Client

ARAMCO

Consultants

Associated Consulting Engineers (ACE)

Comprehensive land-use planning of Dhahran City including survey, mapping and digitization of existing facilities, superstructure and infrastructure as well as the assessment of existing land-use patterns. The study involved the undertaking of traffic surveys and modeling of prevailing networks for both pedestrians and vehicles.

In addition, the project included the following:

- Demographic analysis and projection.
- Forecast and modeling of anticipated growth based on alternative development policies and scenarios.
- Allocation of land reservations for future expansion and growth.
- Analytical assessment of prevailing transport network problem locations and proposals for immediate and long-term remedial measures.

DURRAT AL KHOBAR



KSA



Client

Durrat Al Khobar Company for Recreational Resorts

Consultants

Associated Consulting Engineers (ACE)

Construction Cost:

400 Million US Dollars

The Durrat Al Kohobar Site is located in Al-Aziziah area in Al-Khobar and occupies approximately 4,100,000 m².

The Project will comprise the following components:

- Land plots facing the sea
- In-Land plots facing green spaces
- Land for Hotel
- Marina
- Restaurant Island
- Land for public facilities
- Play areas and sport areas
- Open green spaces
- Roads and bridges
- Utilities





DURRAT ARRIYADH



KSA



Client: Durrat Arriyadh Real Estate Co. Ltd

Consultants: Associated Consulting Engineers (ACE)

Construction Cost
300 Million US Dollars

Durrat arriyadh- 1 includes 8 million cubic meters of cut and fill to allow the formation of 1,200,000m² of landscape area, 400,000m² of roads and walkways and development of 1,700,000m² of residential and nonresidential plots.

PROJECT ELEMENTS: 802 residential plots each 1000-1500 m², 34 non-residential (mosques, schools, medical center) plots, Hotel (150 rooms), Residential compound (256 unit), 28 kms of rock protection Open channels and culverts, 5 Artificial waterfalls, 5 lakes 30 kms of internal road network, 7Km of precast boundary fence Wet utilities including stormwater, potable water, sewage system and irrigation, dry utilities including electrical MV and LV distribution, area lighting and telecommunication network

CONSULTING SERVICE: Master Planning, design of roads, infrastructure and landscaping, preparation of tender documents and tendering. Construction cost estimates, budget control and schedules, construction management and supervision of construction.

LINORD URBAN DEVELOPMENT



LEBANON



Client
SESNOR S.A.R.L

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
600 Million US Dollars

A vast development scheme on 2.5 million m sea reclaimed site to provide touristic facilities, residential districts, business zones, commercial areas, tank farms for oil & gas, public parks, yacht marinas, fishing port, total community facilities and complete infrastructure services. The study of roads encompassed the following:

- Traffic Analysis:
 - Study of interface with external networks, both, existing and planned.
 - Study of internal traffic circulation.
- Transport Plan:
 - Study of external networks vs. Access links to LINORD.
 - Study of local network within the site.
- Engn'g Drawings:
 - Roads typical cross-sections.
 - Preliminary design of interchanges connected to the coastal highway and railway road.



CULTURAL HERITAGE & URBAN DEVELOPMENT PROJECT (CHUD), BAALBECK OLD CITY



LEBANON



Client
Durrat Khaleej Al Bahrain Co.

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
15 Million US Dollars

The project includes the followings:

- Developing a traffic circulation plan in order to reduce the traffic congestions especially in proximity of the city touristic areas.
- Rehabilitating and upgrading the roads surrounding Ras Al Ain Source and other urban furniture elements important to the good functioning and the aesthetics of 4000 years old city's streets and public right of ways.
- Beautification and landscaping the Ras Al Ain Public Park.
- Provision of three parking areas, one located near the Lebanese army barracks and another two on Ras Al Ain main road.
- Establishment of a covered market structure with vending areas and upgrading of the public spaces & roads around the market area.

MASTER PLAN FOR THE CITY OF DOUALA



CAMEROON



Client
Ministry for Urban Affairs

Consultants
Associated Consulting Engineers (ACE)

This study entailed the preparation of a detailed Urbanization and Land-Use Master Plan for the City of Douala, the economic capital of the Cameroon with one of the leading African ports on the Atlantic, covering a gross area exceeding 210 sq Km with an estimated population of around 1.5 million inhabitants.



THE BLUE CITY



OMAN



Client

Al Sawadi Investment & Tourism Co.

Consultants

Associated Consulting Engineers (ACE)

Construction Cost
20 Billion US Dollars

The large, triangular site of "The Blue City" is located at Al Sawadi and covers 34 sq. km. The site is about 30 minutes driving distance northwest of Seeb International Airport and 45-60 minutes (90 km west) of Muscat. Driving distance to Dubai is approximately 3-4 hours by car. The closest town is Barka, approximately 10 km to the east. Its main features are:

- Prime seafront site approximately 15 km beachfront
- Over 20 to 30 Million square meters of gross floor area, developed over several, market-determined phases over the next 15 years.
- Entire new city more than 250,000 permanent and visiting residents.
- A new tourism and business destination of national, regional, and international relevance.
- Sustainable development principles and eco-friendly design are applied.
- Phase One is to comprise hotels, residential, residential tourism and other tourism related components in the high-end market segment.

SOUTH EL DOHA NEW TOWN MASTER PLANNING STUDY



KUWAIT



Client

Public Authority for Housing Care

Consultants

Associated Consulting Engineers (ACE)

Construction Cost
245 Million US Dollars

Comprehensive land-use and master planning of a residential new town of 3,800 independent residential units together with all the requisite public and ancillary support utilities including neighborhood centres, kindergartens, primary and secondary schools, shopping areas, mosques, public gardens, civil, communal and health facilities.

In addition, the project included the following:

- Land-use plan alternatives.
- Conceptual design of all roads and circulation networks.
- Allocation of land reservations for future expansion and growth.
- Analytical assessment of prevailing transport networks and proposals for immediate and long-term remedial measures.

SUNSET HILLS AT AL AREEN



BAHRAIN



Client

Abu Dhabi Investment House

Consultants

Associated Consulting Engineers (ACE)

Construction Cost
75 Million US Dollars

The project area is around 50,000m2 and forms part of the overall Al Areen Development. The project comprises 41 Nos. town houses, 10 Nos. villas, 10 Nos. 6-storey terraced apartment buildings, 1 No. 10-storey mixed use building, clubhouse and other amenities.

Sunset Hills is located at the southern gateway of Al Areen.

The land is designed for residential use with an element of retail use to serve the local community, comprising of villas, town houses as well as 1, 2, and 3 bedroom apartments with marvelous views of the sun setting over the mysterious Arabian Desert.

The unique Al Areen development that costs over \$1 billion US Dollars and spreads over an area of 2 million square meters furthers Bahrain's reputation as a friendly destination for family and health-oriented tourists. The development is a 35-minute drive from the Bahrain International Airport, 25 minutes away from the city centre of Manama and 20 minutes away from King Fahad causeway. It is adjacent to the Bahrain International Circuit (BIC), the Middle East's first ever Grand Prix circuit, and the Al Areen Wildlife Sanctuary.

AL RAYYAN VILLAGE



QATAR



Client

Prime Lands real estate development L.L.C

Consultants

Associated Consulting Engineers (ACE)

Construction Cost
110 Million US Dollars

Al Rayyan is an urban village that embodies the vision and ambition of Prime Lands real estate development, and most of all, the aspirations of modern expat families. Some of its most interesting features:

- High-end construction finishes, coupled with top brand MEP installations
- Highest residential security including an extensive array of the most advanced antiterrorism and anti-intrusion systems
- Compliant with American and European safety regulations and procedures- Safe and fully-equipped playgrounds for children
- Large green areas and private gardens maintained through advanced automatic irrigation systems
- 11,000 sqm Club house, roof top swimming pools and tennis courts, a modern gym, squash courts, sauna, panoramic elevators, trendy coffee shops and lounges, relaxing waterfalls...
- Underground water tanks
- Underground parkings
- Energy efficiency, Sound proofing design, Superior AC systems



NORTHGATE MIXED USE DEVELOPMENT



Client
Equinox

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
350 Million US Dollars

This project was aimed to set the precedent for future commercial and mixed-use developments in Doha's accelerating economy.

The planning for these 20 hectares, mixed use development site is in two halves, a commercial half at the East side near the Shamal Road which accounts for most of the development and parking as built up area.

The west side of the site has less intensive land use and is dedicated to residential. The planning for the Shopping Mall is Ground plus One plus leisure. The building stacks up at the south end with leisure tenants such as the cinema screens and the Family Entertainment Centre. The roof in this area sweeps upward and over the roof of the shops area of the mall.

The West Mall at the second level makes the most of a connection of casual dining for all visitors to North Gate.

The shopping Mall is a racetrack design in plan. It is anchored north and south by up to five major department stores. The east side end fronts the Shamal Road and is therefore the main drop off, and is the zone of the fashion shops, and other high-end retail.

The west mall opens to the mix of uses, the six large G+4 office buildings, the serviced apartments, the club house, and the gardens of residential. The leisure uses, shared by the shoppers, office workers, and residents are at the west: restaurants, cinemas, specialist businesses, services.

The Shopping Mall has a built up area of 140,356 m2 excluding the loading areas and the parking.

Up to 25 Mall Kiosks

- 9 Cinema Screens and 1374 seats, including a VIP Screen and Lounge
- Supermarket with 15 Specialist Shops
- 4,010 Parking Spaces
- Amenities such as Concierge, hotel quality Service, large prayer rooms, garden spaces
- Waiting Rooms and Lounges



DURRAT AL MUKALLAH DEVELOPMENT



Client
Sheikh Abdullah Bugshan – The Yemen Group

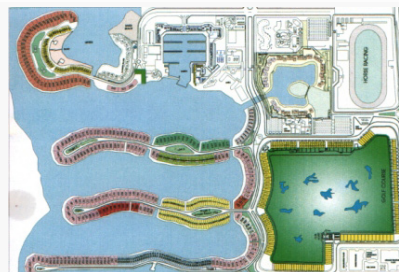
Consultants
Associated Consulting Engineers (ACE)

The aim of the Study is to determine the most appropriate way of enacting policies for development with the ultimate objective being to fully utilize and maximize existing opportunities and to minimize investment required for development.

The main facilities incorporated in the project included:

- Around 850 villas including Luxury villas with own beach,
- Over 4000 Apartments and Chalets,
- 5 stars Hotel with Marina and Marina Village,
- Commercial Core area with shopping, civic and ancillary support facilities,
- Extensive provision of outdoor recreation facilities.

JEDDAH TOURISTIC CITY



Client
Saudi Company for Recreation Centers

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
300 Million US Dollars

Development of a 210 Hectare marine based recreation city located approximately 40 kms north of Jeddah, Saudi Arabia. The project included 2.5 million cubic meters of dredging to allow sea within the area and backfilling reclamation to introduce sea front land. All shore lines were protected using rock armor and provided with underwater culverts and road bridges to allow water circulation between the "finger" shaped land strips, the artificial island and the existing sea creek.

The project comprises three primary zones of development: Residential plots for sale on landfill, a marina to moor 320 yachts of varying sizes and public facilities primarily aimed at day visitors. The entire city is served by a service area comprising power generation, sewage and water treatment plants as well as city wide control, security and maintenance facilities. This development included the following:

- Residential Elements:
- Marina Facilities:
- Public Facilities:
- Recreational Facilities:
- Infrastructure, Landscape and Hardscape.



THE HOUSE OF EUROPE



Client
Kliendienst properties

Consultants
Associated Consulting Engineers (ACE)

- The plot is located in Jumeirah villa Circle on the main central circle
- The plot is neighbored by G+10 Buildings forming a street wall

- The Building consists of 3B + Ground + 16 floors (H.C. Swimming Pools) The design represents a variety of European capitals merged into a uniting Structure, each hotel room type was Assigned a European capital theme And window typology in order to create A Mondrian elevation that reflects the Functions behind. The building hosts 225 hotel units, 3 business centers, a rooftop bar and Swimming pool and a GF lounge/cafe With an external seating area located Under a series of vaulted archways.

VIZIR DOWNTOWN BURJ KHALIFA AREA



Client
Kaya Project Management L.L.C.

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
180 Million Dirhams

The site, plot 345-419 is located at Burj Khalifa. Generally, the development site is located within a new developing section of Business Bay, Dubai. The development site consists of Basement + Ground floor + Mezzanine floor + 4 Podiums + 22 floors + roof.

The development consists of 237 hotel apartments along with restaurants and general retail. The building is provided with dedicated car parking distributed in the basement, mezzanine floor and two podium floors. Ingress and egress points are provided to ensure easy circulation to the development within adjacent roads network.

MOHAMMED OMAR BIN HAIDER 5 STAR HOTEL



Client
Mohammed Omar Bin Haider Group

Consultants
Associated Consulting Engineers (ACE)

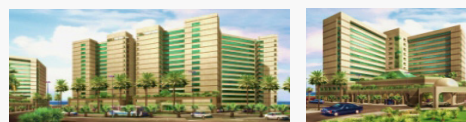
Construction Cost
120 Million Dirhams

The project comprises the Redesign and Construction Supervision of the Hotel Tower including 2 basements, ground floor, 1st floor, 19 floors (rooms) roof, upper roof. A 5 Start Hotel in U.A.E – Dubai.

The hotel also includes 5 outlets, 2 ballrooms, distributed between ground and 1st floor with one VIP Lounge, Health Club and Roof Swimming Pool.

The Hotel is part of the Crown Plaza Chain and provide 345 (Twin and Double Rooms) with 20 suites with underground Car Parks, Main Kitchen, back of house facilities as well as Hotel Staff facilities such as changing rooms, shower, staff canteen, etc.

HAMRIYA HOTEL & RESORT DEVELOPMENT



Client
Hamriya Ports Authority

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
100 Million US Dollars

A luxurious tourist, leisure and residential sea-front development.

The project involves the development of a comprehensive resort including the following major components:

- 5 stars 350 room hotel,
- A marina facility for over 100 boats and,
- All ancillary support and sport facilities
- Infrastructure.



THE CREEK LANDING GUEST HOUSE & TRADE HALL



Client
The Palm Developers,
Dubai

Consultants
Associated Consulting
Engineers (ACE)

The Creek Landing is a mixed-use Hospitality and Retail project located on the East, or Deira, side of Dubai Creek, immediately North of the Al Maktoum Bridge.

The Project is comprised of two main components:

- The Guest House with a gross building area of around 45,150 sq. meters, and
- The Trade Hall with a gross area of around 11,100 sq. meters.

Attached to the Guest House is the Wedding Hall which functions for weddings and banquets.

The Guest House building contains parking on the first two levels, accessed from the East side entry drive. On the third level are retail facilities consisting of the major central Bazar and a series of courtyards. Above the retail level are the 154 guest suites of the Guest House.

The Wedding Hall accommodates receptions of up to 300 people in an independent facility served by its own kitchen and circulation.

The Trade Hall also has two levels of parking, with two retail levels

DUBAI CUSTOMS GUEST HOUSE DEVELOPMENTS



Client
The Palm Developers, Dubai

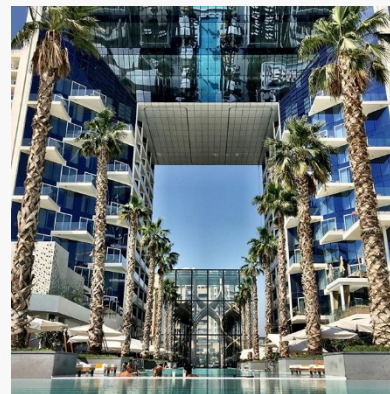
Consultants
Associated Consulting Engineers (ACE)

Construction Cost
200 Million Dirhams

The project comprises of:

- Guest House building consisting of 2 stories parking, one story lobbies and restaurants, and 6 stories hotel rooms and suites. (Total No. of rooms 170, total built-up area 45158m²)
- Trade hall building consisting of 2 stories parking and 2 stories shopping mall, with built up area of 11,114m².
- Wedding hall accommodates receptions of up to 300 people in an independent facility served by its own kitchen and circulation.
- Sport facilities; Gym, club house etc.

VICEROY HOTELS RESORTS RESIDENCES



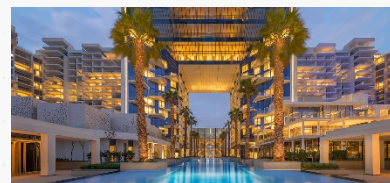
Client
Industrial And Commercial
Bank Of China Limited

Consultants
Associated Consulting
Engineers (ACE)

Construction Cost
800 Million Dirhams

The project is an integrated hotel and residential development and is located on the main trunk of the Palm Jumeirah, Dubai, UAE.

The development on the site has a built-up area of approximately 89,500 sq.m. excluding



parking, MEP and external areas, and a maximum height of G + 17 floors.

The total constructed floor area of the development is approximately 177,000 sq.m. and includes 2 basement levels. It consists of a U-shaped, 17 story hotel and services apartments complex in three adjoining blocks over a large (190 x 177m) rectangular ground floor and two basements.

UPGRADING & RENOVATION OF CROWNE PLAZA COMPLEX



Client
Pearl Azure Properties

Consultants
Associated Consulting
Engineers (ACE)



CROWNE Plaza Complex is a mixed-use development which is a focal point and shopping destination in Dubai. It is constantly seeking to enhance the experience for shoppers as well as its office and residential and Hotel complex.

The use of high-quality materials generously dimensioned spaces, attention to detail and consistent care for the environment underlines Crowne Plaza aspiration to maintain its role as a leading hospitality destination.



JORDAN VALLEY MUJIB DAM



Client
Jordan Valley Authority - JVA

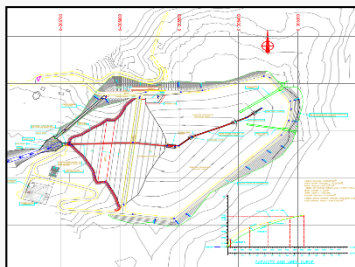
Consultants
Associated Consulting Engineers (ACE)

Construction Cost
63 Million US Dollars

In association with Lahmeyer - Hamza JV. Roller compacted concrete (RCC) Dam, 62m height and 720m long impounding a reservoir of 35 million cubic meter capacity, incorporated into the body of the dam are:

- Three level draw of structures
- Two conduit bottom outlet structures
- Stepped spillway and downstream stilling basin
- Bridge over the dam crest
- Controls house a permanent operator's camp.

MANZOUL DAM IN METN CAZA



Client
Council for Reconstruction and Development

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
14 Million US Dollars

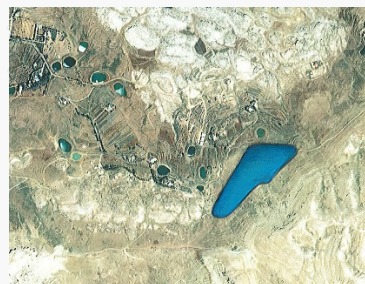
The Lebanese Council for Development and Reconstruction (CDR) Beirut, contracted the detailed design aspects of the Manzoul Dam in the Lebanese Caza of Metn to Associated Consulting Engineers (ACE). The lake of the Manzoul dam in the Metn Caza will serve to provide the increasing needs, especially in drinking water during the summer months of the localities surrounding the project site.

The majority of the agglomerations will be supplied with potable water by gravity. Some leisure centers that were constructed during the recent years will be supplied by pumping. This lake of 400,000m³ capacity will assure the security of the potable water supply by gravity for the localities situated at a level lower than 1750.

- Project works included the design of a rockfill dam 32m high & 285m long, impounding approximately half a million cubic meters of water.
- Ancillary works included a spillway, a water treatment plant, transmission lines and a pumping station.
- Design of access roads to the Dam surrounding area and to the different water facilities.

This project is part of the Water Plan established by the MEW. The construction of the project will start in early spring next year, because of the high altitude of the dam with snowy conditions during the winter months.

LAQLOUQ DAM & LAKE



Client
Ministry of Energy and Water (MEW)

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
18 Million US Dollars

The lake of the Laqlouq dam in the Jbeil Caza will serve to provide the increasing needs, especially in drinking water during the summer months of the localities surrounding the project site.

The majority of the agglomerations will be supplied with potable water by gravity. This lake of 550,000m³ capacity will assure the security of the potable water supply by gravity for the localities situated at a level lower than 2000.

- Project works included the design of a rockfill dam 35m high & 560m long, impounding approximately half a million cubic meters of water.
- Ancillary works included a spillway, a water treatment plant with a capacity of 5,000m³/day, transmission lines and a pumping station.
- Design of access roads to the Dam surrounding area and to the different water facilities.

JORDAN VALLEY AL-FEDAN DAM



Client
Ministry of Water & Irrigation - JVA

Consultants
Associated Consulting Engineers (ACE)

Construction Cost:
25 Million US Dollars

A major project for the Ministry of Water and Irrigation and the Jordan Valley Authority.

The project incorporated the evaluation of the potential and exploitable flood water on Fiedan trough the construction of a dam at Wadi Fiedan based on technical and economical feasibility studies.

The study involved the design of the main dam and subsequently the design of all associated reservoirs, irrigation distribution systems and canals.

The main components of the project included:

- Main Dam with a height of 37 meters
- Saddle Dam
- Reservoirs
- Distribution networks and canals



FOUR UNIVERSITY CENTERS



ALGERIA



Client

Ministere de l'Enseignement
Superieur et de la Recherche
Scientifique

Consultants

Associated Consulting Engineers
(ACE)

The project comprised four University Centers complete with all facilities required to train, house and cater to the educational, social and religious needs of 6,000 students at each of the four centers. These University Centers in the Wilayas of Setif, Tebessa, Bechar and Biskra form major elements in the Nation's Education Expansion Program.

Each University Center incorporated academic, residential, community and service facilities including but not limited to the following:

- Classrooms
- Laboratories and Seminar rooms
- Amphitheaters
- Gymnasiums
- Administration Offices
- Ancillary Support Facilities such as restaurants, cafeterias, student centers, libraries, health care centers
- Residential Facilities including academic staff accommodations and student dorms
- Outdoor Recreation Facilities and Open Spaces
- All requisite infrastructure

QUEEN MARY WESTFIELD COLLEGE, LONDON



UK



Client

London University

Consultants

Associated Consulting
Engineers (ACE) - Sir
Frederick Snow & Partners

Construction Cost

6.5 Million US Dollars

New Halls of Residence, Laws Building and Peoples Palace : engineering design for new 127 bed student halls of residence, split in to 2, 3 and 4 bedroom units; engineering design and cost estimation for the refurbishment of the Laws building on campus; mechanical and electrical refurbishment of the listed 'Peoples Palace' building to provide additional lecture, examination and function facilities.

LEBANESE AMERICAN UNIVERSITY – MEDICAL & NURSING SCHOOL



LEBANON



Client

Lebanese American
University (LAU)

Consultants

Associated Consulting
Engineers (ACE)

Construction Cost:

18 Million US Dollars

A state-of-the-art Medical School: the most modern in the Middle East and is associated to Harvard Medical, School U.S.A. It encompasses an Auditorium, Library, Simulation Center, Anatomy Laboratory, Skill Assessment Center, Administration, Case Method Rooms, Classrooms, Teaching Labs and two floors dedicated to Research Labs with all related annexes.

LEBANESE AMERICAN UNIVERSITY LIBRARY BUILDING



LEBANON



Client

Lebanese American
University (LAU)

Consultants

Associated Consulting
Engineers (ACE)

Construction Cost:

15 Million US Dollars

Detailed master planning, design, supervision and project management of a 37,500 sq meters main library and central administration building at the LAU Campus at Byblos.

Although modern and prestigious in character, this building was designed in such a way that it blends in its natural and built-up environment. It reflects the distinct architectural heritage of the region while, at the same time, acts as a distinctive landmark to the newly developing university campus.

The project included the following main components:

- 13,199 sq meters main library.
- 5,466 sq meters for campus central administration offices and support.
- 18,790 sq meters of underground car parking space.
- Independent entrances to the administration and library sections of the building.
- Prestigious entrance courtyard with landmark.



WESTMINSTER COLLEGE, LONDON



Client
Westminster School

Consultants
Associated
Consulting Engineers
(ACE) - Sir Frederick
Snow & Partners

**Construction
Cost**
10 Million US Dollars

Condition surveys for mechanical and electrical facilities of the four site buildings of Westminster College.

Followed by design and construction supervision for comprehensive upgrading and rehabilitation of all building services at Vincent Square and Battersea Park Road buildings.

Consultancy services included:

- Site investigation
- Structural report on existing building
- Structural and services engineering design
- Construction supervision.

DOWN SYNDROME SCHOOL - RIYADH



Client
SAUT: The Voice Of Down
Syndrome Society.

Consultants
Associated Consulting
Engineers (ACE) with ACEC

This School Complex is built on a land of 10,000m² approximately in Al Hada District in Riyadh. The Components of this School Complex are:

- The School
- Administration Building as the HQ of SAUT
- Multipurpose Hall

The capacity of the school is 300 students for ages from Birth to 18 years and structured with 5 levels as follows:

- ❖ Early Intervention (Birth to 3 Years), mixed boys and girls and subdivided into 2 levels, Birth to 18 months and 18 months to 3 years.
- ❖ Pre-School of 3 classes, Years 3,4 and 5, mixed boys and girls
- ❖ Elementary School of 3 classes, Years 6,7 and 8, mixed boys and girls
- ❖ Middle School of 3 classes, Years 9,10 and 11, mixed boys and girls
- ❖ Upper School with separation of boys and girls having 3 classes, Years 12 to 14, 14-16 and 16-18

SAINT ROBERT OF NEWMINSTER SCHOOL



Client
Northumberland County

Consultants
Associated Consulting Engineers
(ACE) - Sir Frederick Snow &
Partners

Construction Cost
8.5 Million US Dollars

New 2 storey development comprising classrooms, laboratories, library, lecture theatre, art and technology rooms and assembly hall. In addition there will be major alterations to an existing single storey house block to provide additional teaching area for 1,100 pupils.

Consultancy services included:

- Site investigation
- Structural report on existing building
- Structural and services engineering design
- Construction supervision.

LYCÉE BONAPARTE



Consultants
Associated Consulting
Engineers (ACE)

Construction Cost
120 Million US Dollars

The rebuilding of the Lycée Bonaparte in Doha was determined by the architectural configuration of the school by a basic principle that favors the classroom orientation, direction of sun, easy orientation for visitors.

The Lycée Project is the redevelopment of the existing Lycée Bonaparte School located in West Bay Doha on a 27,989m² plot. The intention is for the school to remain operational during the proposed remodeling works.

The new school is to cover Kindergarten, Elementary, High School, and College levels with supporting ancillary facilities such as Sports hall, football field including the running track, handball indoor court (gymnasium), swimming pool, Kitchen, and audiovisual hall to accommodate 1,800 students.



NEW NATIONAL HOSPITAL



ST. LUCIA,
CARIBBEAN



Client

Ministry of Health / Government of Saint Lucia, Caribbean

Consultants

Sir Frederick Snow & Partners/ACE

Construction Cost

50 Million USD

Planning, implementation, design, production of working drawings and tender documentation, and supervision of construction for a new 153 - bed National Hospital of approximately 14,000 square metres total area and set within a prime 15-hectare site on the outskirts of the Island's capital city, with all the necessary internal and external services, including:

- Accidents and Emergency
- Radiology
- Medical Cardiology
- Respiratory Medicine
- Physiotherapy
- Critical Care
- Operating Suites
- Children, Surgical & Medical Wards
- Gynecology and Obstetrics
- Mental Health Ward
- Dialysis etc.

And all associated infrastructure, support, administration, and accommodation facilities. The service disciplines provided under the consultancy agreement include health and hospital planning, quantity surveying, architectural, civil, structural, services, medical equipment and environmental engineering.

400 BED HOSPITAL AT SULEIMANIYEH



IRAQ



Client

World Health Organization

Consultants

Associated Consulting Engineers

Construction Cost

50 Million USD

WHO were requested by the UN Office of the Iraq Program to procure the design, construction a new 400 Bed Hospital in Suleimaniyeh.

The hospital building has been designed with due consideration to its medical function, character, innovation, urban responsiveness and spatial frameworks of accessibility, legibility, amenity, architecture and engineering, and to provide a facility with well-integrated departmental organization and design, to best serve patients, staff and visitors. The building design incorporates 6 levels: three podium levels and a recessed wards tower above the podium:

The total number of patient beds is 414; 368 of which in the various wards and 46 for intensive care. Excluding balconies, open walkways and covered entrances, the total building area is 47,066 m².

NEW MEDICAL CENTERS IN LEBANON



LEBANON



Client

Ministry of Public Health / Council for Development and Reconstruction (CDR)

Consultants

Associated Consulting Engineers (ACE)

Construction Cost:

17 Million US Dollars

This project involved the planning, conceptual design detailed engineering, preparation of tender documents, tendering and supervision of construction for eight medical centers and regional hospitals distributed over the various Lebanese regions.

These centers included polyclinics, a five beds emergency center, surgical units, a small operating theater, a maternity center with all the requisite ancillary support facilities. The project was financed by the Kuwaiti fund for Arab Economic Development. These centers covered the following regions:

Arsal - North Beka, Deir Ammar - North Beka, Chmistar - Central Beka, El Nabi Chit - Central Beka, Bar Elias - Békaa Ouest, Hammana - El Metn - Mount Lebanon, Qartaba - Jbeil - Mount Lebanon

INTERNATIONAL MEDICAL CENTER (IMC)



SYRIA



Client

International Medical Centre (IMC).

Consultants

Associated Consulting Engineers (ACE)

Construction Cost:

1.3 Million US Dollars

The International Medical Center Project is located in Yafour area, 15 Km from the city centre of Damascus on the main Damascus Beirut Highway. The project's site has an area of 37,141 m², with total built up area of the Hospital Centre estimated at 26,000 m².

The 130- bed General Hospital includes an Outpatient clinic encompassing:

- Ophthalmology + Vision C.
- Otolaryngology ENT
- Pediatrics
- Obstetric a. Gynecology
- Internal Medicine
- Cardiology
- General Surgery
- Plastic Surgery and Dermatology
- Orthopedic Surgery

It also includes: Laboratory, Inpatient Pharmacy, Radiology Diagnostic, Procedure Block, Lithotripter, Dialysis, IVF Suite, Rehabilitation & Physiotherapy, Emergency



QUEEN'S CENTRE HOSPITAL, HULL



Client

Hull and East Yorkshire
Hospitals NHS Trust

Consultants

Sir Frederick Snow & Partners
/ ACE

Construction Cost

100 Million US Dollars

This Public Finance Initiative (PFI) development is a 100-bed hospital having an approximate built-up area of 12,000 square metres in the City of Hull. The hospital centre is specialised in Oncology and Hematology and includes other specialised services, namely:

- Oncology
- Hematology
- Physiotherapy
- Operating Suites
- Accidents and Emergency
- Radiology

And all associated infrastructure, support, administration, and accommodation facilities.

The service disciplines provided under the consultancy agreement include hospital planning, quantity surveying, civil and structural

SUNDERLAND ROYAL HOSPITAL



Client

City Hospitals Sunderland
NHS Trust

Consultants

Sir Frederick Snow &
Partners / ACE

Construction Cost

30 Million US Dollars

The Project consists of a three-storey extension to the existing Hospital, the District General Hospital Scheme III. The extension has a built-up area of 9,800 square metres in the City of Sunderland. The General Hospital centre has all the necessary internal & external services, including:

- Accidents and Emergency
- Radiology
- Cardiology
- Respiratory Medicine
- Physiotherapy
- Critical Care
- Operating Suites
- Children, Surgical & Medical Wards
- Gynecology and Obstetrics
- Mental Health Ward

And all associated infrastructure, support, administration, and accommodation facilities. The extension was mainly for the Operating Suites and Critical Care Ward as well as a 40-bed increase in the hospital centre's capacity.

CHURCHILL HOSPITAL PFI, OXFORD



Client

Oxford Radcliffe Hospitals
NHS Trust

Consultants

Sir Frederick Snow &
Partners / ACE

Construction Cost

170 Million US Dollars

This Public Finance Initiative (PFI) project is a 140-bed hospital having an approximate built-up area of 16,000 square metres in the City of Oxford. The hospital has all the necessary internal & external services, including:

- Accidents and Emergency
- Radiology
- Cardiology
- Respiratory Medicine
- Geriatrics
- Oncology
- Hematology
- Physiotherapy
- Operating Suites
- Gynecology and Obstetrics

And all associated infrastructure, support, administration, and accommodation facilities.

The service disciplines provided under the consultancy agreement include health and hospital planning, quantity surveying, civil and structural engineering

MILITARY HOSPITAL OF ZARQA



Client

Jordanian Armed Forces -
Royal Medical Services

Consultants

Associated Consulting
Engineers (ACE) & PAGE

Construction Cost

100 Million US Dollars

The Project involved the undertaking of feasibility studies, comprehensive planning and detailed studies for the Military Hospital at Zarqa, providing various internal and external medical services.

The Hospital included:

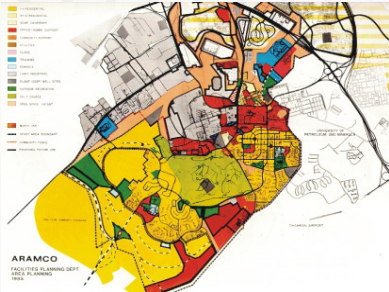
- 170 beds over a surface of 41,000 m²
- External Services over a gross area of 1400 m²
- Administration 500 m²
- Officers catering 850 m²
- Nursing and officers accommodations 700 m²



DHAHRAN TRANSPORTATION STUDY



KSA



Client
ARAMCO

Consultants
Associated Consulting
Engineers (ACE)

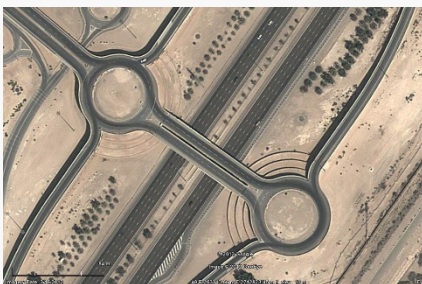
Comprehensive transportation and traffic assessment study of Dhafran City including survey, mapping and digitization of existing facilities, superstructure and infrastructure as well as the assessment of existing circulation patterns and traffic surveys and modeling of prevailing networks for both pedestrians and vehicles. In addition, the project included the following:

- Traffic analysis and projection.
- Forecast and modeling of anticipated growth based on alternative development policies and scenarios.
- Simulation of traffic and movement patterns.
- Identification of desire-lines based on origin-destination survey and analysis.
- Analytical assessment of prevailing transport network problem locations and proposals for immediate and long-term remedial measures.
- Detailed design of phase 1 implementation packages.

INTERCHANGE IN AL BAHIA



UAE



Client
Abu Dhabi Municipality –
Roads Dept.

Consultants
Associated Consulting
Engineers (ACE)

Construction Cost:
35 Million Dirhams

The project is intended to provide connection between Abu Dhabi- Dubai road and the new residential area in Al Bahia, through the construction of an interchange. The project involves the construction of diamond interchange including 2 bridges 4-spans each (15m-32.5m-32.5m-15m), 2 elevated roundabouts, 4 ramps and 12 x 2 lanes access ramp to Bahia, 5 service roads, 1 underpass, and retaining walls using reinforced earth system. The project also involves the protection / relocation of different service utilities.

The total length of road amounts to 4.5 kms - including single and dual carriageway roads.

The project design works included the design of roads, traffic signage including traffic gantries, road markings, post tensioned bridges with 32.5m main span, MSE walls for the ramps and access roads, reinforced concrete frame underpass, street lighting, surface drainage, and landscaping and architectural treatment of the project.

A 40 WESTERN AVENUE



UK



Client
Highways Agency,
Department of Transport

Consultants
ACE & Sir Frederick
Snow & Partners

Construction Cost
100 Million US Dollars

Major urban highway continuous improvement project involving bridges, flyovers, underpasses and pedestrian facilities and retaining structures. Includes production of feasibility studies for various options for improvements, traffic modeling and forecasting. Assessment of scheme economics and environmental effects. Liaising with all interested parties.

EL METN EXPRESSWAY



LEBANON



Client
Council for Development
and Reconstruction (CDR)

Consultants
Associated Consulting
Engineers (ACE)

Construction Cost:
50 Million US Dollars

A major mountainous highway starting at the end of existing Nahr el Maout Boulevard with an interchange at Roumieh Road and providing a completely new alignment in a virgin land climbing the hills until it meets the existing road at Jouret el Ballout where an interchange was introduced.

The alignment passes under Deir Marchaaya and connects with the existing road at Baabdat entrance with a trumpet type interchange. The highway length is around 12 kms. It has 2 carriageways of 2 lanes each.

The design covered the conceptual, preliminary and detailed design, including road geometrics, drainage, sewage and potable water networks, structural design for all bridges and viaducts (around 20 structures), street lighting, telephone, traffic marking and signs and safety equipment.

A mountainous highway of 12 km in length linking the coastal area of El-Metn Caza, North of Beirut with the mountain summer resort town of Baabdate in the upper Metn at around 1000m altitude.

The project includes 20 bridges and viaducts and 4 interchanges. The design included stormwater drainage, sewage network and potable water network, telephone and electricity networks, street lighting and all traffic and safety appurtenances.



A 406 NORTH CIRCULAR ROAD



UK



Client
Department of Transport

Consultants
Associated Consulting Engineers (ACE) - Sir Frederick Snow & Partners

Construction Cost
175 Million US Dollars

The project consists of the improvement of 4km of major urban ring road to grade separated dual carriageway standards, involving two multi span flyovers and an underpass.

The project involved in excess of 100 structures, including:

- 310m dual 2-lane tunnel to carry trunk road beneath two highway junctions and rail embankment,
- 835m dual 2 lane steel/concrete composite viaduct to carry trunk road over major junction, a railway and new highway,
- 670m dual lane steel/concrete composite viaduct to carry traffic over new roundabout and three water courses.

TRIPOLI EASTERN RING ROAD



LEBANON



Client
Council for Development and Reconstruction (CDR)

Consultants
Associated Consulting Engineers (ACE)

Construction Cost:
100 Million US Dollars

The road starts in Ras Masqa area at Wadi Abou Halqa where it branches out from the existing Beirut-Tripoli expressway then turns north-east taking a parallel routing to the proposed North Expressway and ends at Beddaoui area at the Refinery entrance.

The proposed Easter Ring Road of Tripoli is approximately 9.5 km. It is a south north corridor located on the east side of Tripoli within a 32m right of way that was reserved through a land subdivision project. This road spans Abou Halqa valley, Hab valley and Abou Ali River with high bridges and it intersects with 5 east - west corridors

The section is mainly 2x2 with service roads 2 lanes on both sides. The Project is about 9 km long; approximately, it includes roads, drainage, utilities relocation, electrical, telephone network, landscaping and structural works, and is divided in two packages:

- Package I (about 6.9 km). It begins in Ras Masqa at Wadi Abou Halqa and ends at existing Sir Road. It includes 15 structures (underpass / bridge).
- Package II (about 2.5km). It begins at Sir Road and ends in Beddaoui where it connects with Beddaoui-Deir Ammar existing road. It includes 5 structures (underpass / bridge).

BEIRUT OUTER RING HIGHWAY



LEBANON



Client
Council for Development and Reconstruction (CDR)

Consultants
Associated Consulting Engineers (ACE)

Construction Cost:
400 Million US Dollars

The Beirut Outer Ring Highway is a vital peripheral highway connecting the existing coastal southern and Northern highways and Beirut - Damascus Highway (Arab Highway). The part included in the contract covers 17 kms of 2x3 and 2x4 Lanes with a number of 2 lane lateral roads.

The project includes also:

- 11 interchanges of trumpet, diamond, clover leaf, and parcel configurations.
- 63 bridges and viaducts up to 400 m length with individual spans reaching 55 meters.
- 2 Km of tunnels.
- Several depressed sections.
- Retaining walls and side slope protection.
- Box and pipe culverts and stormwater drainage system.
- Sewage and potable water networks
- Telephone ducting network.
- Utility services and crossing.
- Road marking, signage, and safety installations.
- Street lighting.
- MV & HV electrical networks relocation.
- Soft & hard landscape areas.

ZARA GHOR HADITHA HIGHWAY & MUJIB



JORDAN



Client
Zara Ghor Haditha

Consultants
Associated Consulting Engineers (ACE)

Construction Cost
50 Million US Dollars

A 32Km, 2-lane highway, in an extensively rough terrain; it encompasses the design and construction of reinforced concrete bridges, 94 storm water drainage structures, retaining walls and extensive protection concrete and gabion protection works. The project includes a pre-stressed concrete stay bridge 140m long and 13.5 wide, carried by two concrete towers central span, 80m and 30m end spans. The bridge is founded on 40 concrete bored piles, 1.20m in diameter and 25m deep.



INDUSTRIAL PARK FOR SUPPORT INDUSTRIES



KSA



Client
Royal Commission for Jubail and Yanbu

Consultants
Associated Consulting Engineers

Construction Cost
90 Million US Dollars

A major project intended to provide master planning and implementation of an industrial park for support industries at the Yanbu Industrial City. Extending over an area of 400 hectares, the Park provides the infrastructure required to serve the industrial facilities and installations to be accommodated within the Park area. The main elements of the infrastructure development include:

- Industrial planning, selection of candidate industries and physical park zoning, site arrangements and parcellations.
- Traffic circulation and road networks
- Grading and stormwater drainage systems
- Potable water distribution and fire-fighting networks
- Sanitary sewerage network
- Industrial wastewater sewerage network
- Refuse disposal systems
- Landscaping and irrigation water distribution systems
- Power distribution systems
- Street and area lighting systems
- Telecommunications conduit systems

SIBLIN CEMENT FACTORY



LEBANON



Client
Al Sharq Cement Company

Consultants
Associated Consulting Engineers (ACE) & CEC

Construction Cost
35 Million US Dollars

A major project involving implementation of a large Portland cement manufacturing facility at Siblin, 40 km south of the capital city of Beirut.

Utilizing the rich natural deposits in the Siblin area, the total production capacity of the factory is 2,000 tons per day with an initial capacity of 800 tons per day.

The project comprises a manufacturing plant of the dry-process type; limestone and shale recovery and storage; sand and iron ore receiving facilities; transfer systems; pre-heater, pre-calciner kilns and cooler systems with precipitators; homogenizing silos and kiln feed systems with storage capacity of 8,000 tons; two 3000-hp finish mills; systems for receiving, handling and preparing coal; ancillary and support facilities; buildings and structures; roads, paved areas, utility services and other site works.

SUPPORT FACILITIES, PETROCHEMICAL COMPLEX AT SITRA



BAHRAIN



Client
Gulf Petrochemical Industries Company - GPIC

Consultants
Associated Consulting Engineers (ACE)

Construction Cost:
19 Million US Dollars

The planning and implementation of support facilities for the new Sitra Petrochemical Complex. The Complex comprises an Ammonia Plant and a Methanol Plant each with a capacity of 1000 tons/day. The project includes infrastructure for the Complex, constructed on a 600,000 square meter reclaimed site, including potable water; power supply and emergency generation and effluent disposal facilities. To support the operations for the Petrochemical Complex, several industrial and conventional buildings and facilities, were constructed, including:

- Gate houses and security facilities.
- 1.7 km dual-divided and 4-lane causeways & Street/ Area lighting
- Complete utilities
- Fire station, safety and security offices
- Medical Center.
- Administrative headquarters offices.
- Technical services office building.
- Warehouse
- Industrial workshop of 1900 m2.
- Landscape irrigation and external works.
- Fuel station
- Mosque.
- Training Center

ADEN FREE ZONE DEVELOPMENT



YEMEN



Client
Yemen Investment and Development Int'l LTD.

Consultants
Associated Consulting Engineers

Construction Cost:
100 Million US Dollars

The project is a new 40 Hectare container terminal proposed to be constructed on the north side of Aden Inner Harbour, adjacent to Caltex Island. It is part of the Aden Free Zone Development Project which is intended to take advantage of the pivotal location of Aden on world shipping routes to develop a major commercial zone facility and container transshipment terminal.

The Phase I development is to the eastern end of the development and comprises dredging and backfilling 700m of deep-water quay, with two subsequent phases planned westward to give a total of 1,700m of quay.

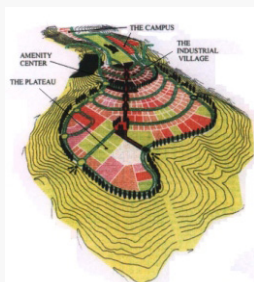
The first phase of the container terminal is to handle 500,000 TEU per year, with later phases increasing this total up to 1,500,000 TEU per year.



AL RAWABI MODEL INDUSTRIAL PARK



LEBANON



Client

Investment Development Authority of Lebanon - IDAL

Consultants

Associated Consulting Engineers (ACE)

Construction Cost

40 Million US Dollars

Within the framework of Lebanon's vital industrial development policy. The Government has decided to establish a new industrial park in the strategic location of Al-Qureya'ah area in the Chouf caza. The site is over 1,800,000 m² of which more than 1,000,000 m² will be developed into a model industrial park of international standards with due regard to highest level of infrastructure services, clean environment and pleasant landscape to create a picturesque industrial park compatible with the attractive natural surroundings. The project consisted of running a feasibility study to establish the project viability and the industrial requirement as to types and related dimensional criteria.

The development contains the following facilities:

- Service zone that contains amenities which are to be shared by the various industries within the compound
- 30-room three-star hotel/ furnished apartments development,
- 1500m² mini-mall
- vocational school, workshops, car and truck repairs centre,
- day care centre,
- fire station,
- recreational facilities,
- small exhibition and conference hall (within the hotel compound)

NATIONAL GUARDS PRINTING PRESS



KSA



Client

Saudi Arabian National Guards

Consultants

Associated Consulting Engineers (ACE)

Construction Cost

20 Million US Dollars

A major scheme intended to provide a main printing and binding facility for the publications of the Saudi Arabian National Guard.

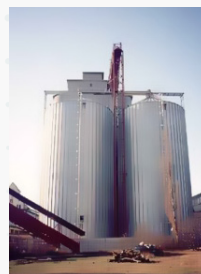
The printing press complex has self-contained facilities for preparation, production, printing, cutting, binding, storage and related services, with a capacity of 6,000 books per hour. The project of 18,500 m² and includes:

- Preparation areas
- Production areas, printing, finishing etc.
- Administration and offices
- Storage areas, Maintenance areas and workshops
- Mechanical and electrical installations
- Equipment and machinery
- Cafeteria and other amenities
- External works

GRAIN SILOS FACILITIES



JORDAN



Client

Ministry of Supply

Consultants

Associated Consulting Engineers (ACE)

A major scheme involving implementation of grain silos and ancillary facilities at Aqaba and Juwaidah. The scheme increases the storage capacities by 80,000 tons at Aqaba and 100,000 tons at Juwaidah.

- Modular Silo structures with a capacity of 20,000 tons.
- Each modular structure comprises 9 main bins and 10 smaller inter-space bins with a height of 45m.
- Intake facilities.
- Feed distribution and reclaim conveyor systems.
- Lateral discharge chutes and gates.
- Aeration and dust control facilities.
- Level and temperature monitoring devices.
- External & Internal utilities for power and control

KHALIFA BIN SALMAN PORT & INDUSTRIAL AREA AT HIDD



BAHRAIN



Client

Ministry of Works, Strategic Projects Directorate

Consultants

Associated Consulting Engineers (ACE) & Royal Haskoning

Construction Cost

450 Million US Dollars

The project has a total area of more than 800 Hectares of reclaimed land at Hidd in the Muharraq area of Bahrain. It encompasses a container terminal Port, a Free Trade Zone and a Local Industrial Area. Phase I of the project comprises the following main elements:

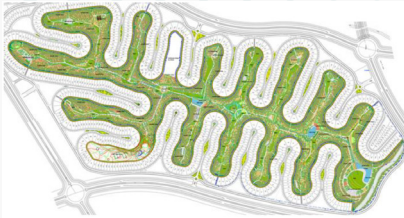
- Dredging and reclamation of 60 million cubic meters of fill material.
- 1,800 meters of quay wall with minimum 15 meters water depth designed for containers, general cargo, dry bulk and roll on-roll off (Ro-Ro) traffic.
- A container terminal including container freight station, aluminum packing shed, entrance gate complex, control tower and other buildings.
- Onshore general cargo area and a Ro-Ro park.
- Onshore container and general cargo handling equipment.
- An industrial area of 240 hectares
- Central facilities which include Business Centre, Administrative Offices, Medical Centre, Fire Station, Police Station and a Security Centre.
- All infrastructures of the above including roads and access roads, water distribution systems, irrigation networks, wastewater networks, sewage treatment plant, electrical, telephone and telecommunications networks and cabling.



DURRAT ARRIYADH



KSA



Client
Durrat Arriyadh Real Estate
Co. Ltd

Consultants
Associated Consulting
Engineers (ACE) with ACEC

Construction Cost
300 Million US Dollars

Development of a 3,300,000 m² residential and non residential city located approximately 30 kms to the north of the Kingdom Tower, Riyadh, Saudi Arabia. The project is adjacent to Prince Sultan Humanitarian City (Durrat Al- Ariyadh -1).

Durrat arriyadh- 1 includes 8 million cubic meters of cut and fill to allow the formation of 1,200,000m² of landscape area, 400,000m² of roads and walkways and development of 1,700,000m² of residential and nonresidential plots.

Project Elements:

- 802 residential plots each 1000-1500 m²
- 34 non-residential (mosques, schools, medical center) plots
- Hotel (150 rooms)
- Residential compound (256 unit)
- 28 kms of rock protection
- Open channels and culverts
- 5 Artificial waterfalls
- 5 lakes
- 30 kms of internal road network
- 7Km of precast boundary fence
- Wet utilities including stormwater, potable water, sewage system and irrigation
- Dry utilities including electrical MV and LV distribution, area lighting and telecommunication network

CONSULTING SERVICES

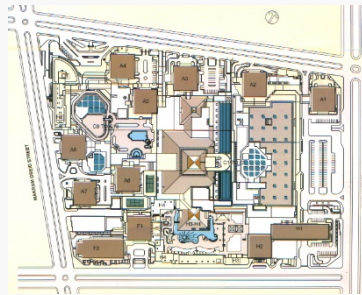
Master Planning, design of roads, infrastructure and landscaping, preparation of tender documents and tendering. Construction cost estimates, budget control and schedules, construction management and supervision of construction.



GOLDEN PYRAMIDS PLAZA PROJECT



EGYPT



Client
Golden Pyramids Plaza Co.

Consultants
Associated Consulting
Engineers - ACE

Construction Cost
700 Million US Dollars

The project is a Five Star Hotel to be operated by Holiday Inn Crown Plaza, with total built up area of approximately 87,650 m², consisting of:

- 4 basement levels
- 16 floors to include 610 rooms,
- 10 villas
- 70 bungalows around swimming pool,
- banquet hall,
- business centres
- health club
- boutiques
- 11 restaurants and cafeterias.

In addition, the project includes the following facilities:

- Furnished Hotel Apartment Block F1, with total built up area of approximately 34,400m², consisting of 3 basement levels and 18 floors to include 88 studios, 32 one bedroom apartment, 30 two-bedroom apartment, 32 three bedroom apartment, 4 five bedroom apartment, cafeteria, restaurant and boutiques.
- Residential Apartment Block F2, 46,600m², Residential & Commercial Apartment Block A1, 30,500m², Residential Apartment Block A2, 26,800m², Residential & Commercial Apartment Block A3, 32,300m².
- Commercial Centre with total built up area of approximately 223,400 m².

CONSULTING SERVICES

Design checking, Construction Management and Supervision of Construction.

