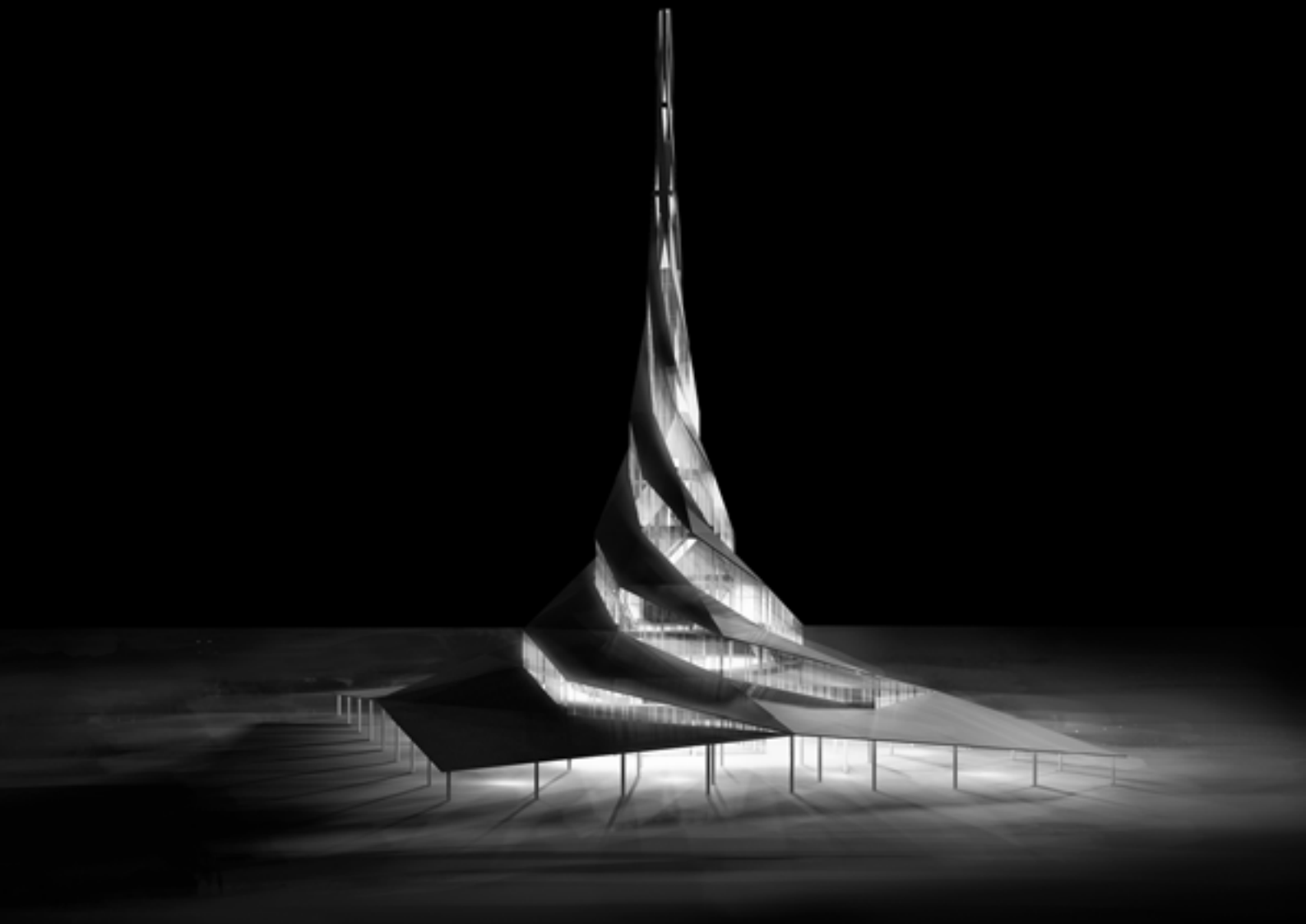


TED JACOB ENGINEERING GROUP

LEADING BY INNOVATION

www.TJEG.com





Leading by Innovation is the core ideology of our success since our inception in 1985, delivering highly technical projects such as healthcare, higher education and mixed use developments.

We have grown from a start-up firm to an industry leader with a solid reputation through our talented team of engineers. We excel in the design of highly complex buildings by implementing innovative ideas as part of our design methodology moving toward net zero energy and minimizing carbon footprint within the budget of a conventional building creating systems that stand the test of time.

We want to thank our clients for entrusting us with their buildings, a testimony to our high level of repeat business by delivering superior results the first time, every time, and anywhere. We have set our operation to deliver consistent quality through a process - based mindset that produces top quality standards project after project, regardless of the geographic area involved.

Our vision is to be the world's benchmark for cutting-edge innovative designs that will exceed the expectations of the end users across the globe.

Ted Jacob, PE
Chairman and Founder

Our Story



2017 DEWA Solar Innovation Center



2015 Cleveland Clinic Abu Dhabi



2014 Hyatt DHCC Hotel & Apartments



2013 Kaiser Oakland Medical Center



2012 Abu Dhabi National Exhibition Center



2012 Kaiser Los Angeles Medical Center



2006 UC Davis Medical Center



2005 Dubai Int. Financial Center



1970 Nad Al Sheba Stables

Ted Jacob Engineering Group (TJEG) is a multi-discipline engineering consultancy firm with offices strategically located throughout the world. At the core of our business is a team of professional engineers with diverse experience across a wide range of disciplines, in many different markets and project types. We have worked with many internationally acclaimed clients on prestigious projects globally and experience has shown us that collaboration from the earliest conceptual stage is key to the successful delivery of world-class projects. Our services include:

- Project Management
- Commercial Services
- Structural Engineering
- Mechanical Engineering
- Electrical Engineering
- Plumbing Engineering
- Civil Engineering
- Lighting Design
- Audio Visual Design
- Acoustics Engineering
- Information Technology
- Fire & Life Safety Engineering
- Building Information Modeling
- Roads and Transportation
- Integrated Project Delivery
- Building Commissioning
- Sustainability Design
- Net Zero Energy
- Site Infrastructure
- Construction Supervision
- Design Build
- Expert Witness

1

HEALTHCARE

Cleveland Clinic Abu Dhabi Hospital

Abu Dhabi, UAE

An iconic architectural design located in the heart of Abu Dhabi on the Al Maryah Island (formerly Sowwah Island), this state-of-the-art 364-bed hospital is expandable to 498 beds and offers clinical care in conjunction with a 7-star experience for the citizens of Abu Dhabi as well as patients from abroad.

The 2.3 million ft² (213,677 m²) hospital project includes the patient tower, a “swing wing” and an ICU tower and digestive disease, eye, heart & vascular, neurological and respiratory units. The development also provides a 2.1 million ft² (195,000 m²) parking area.

The design team implemented evidence based design concepts to provide for unprecedented levels of patient-centered care while integrating the latest building technology for sustainability and energy efficiency. Key engineering features of the project included a double curtain wall system, a variable volume 100% Outside Air with Heat Recovery HVAC system, and a grey water and condensate water recovery system.

The project has won a total of nine awards including the “Best Sustainable Hospital Project in 2015. It received LEED Gold certification.

AWARDS

- Green Commercial Building of the Year - MENA Green Building Awards 2017
- Bronze Award - Modern Healthcare Magazine 2016
- Merit Award - Built Category - American Institute of Architects, Middle East Chapter 2015
- Best Sustainable Hospital Project - Building Healthcare Middle East 2015
- People's Choice Award - Building Healthcare Middle East 2015
- Best Hospital Design Award - Building Healthcare Middle East 2015



Kaiser Oakland Medical Center

Oakland, California, USA

Kaiser Permanente's flagship, high-rise, hospital provides 620,000sf of inpatient care and 370,000sf of outpatient care, with two above and below grade parking structures. Inpatient care includes 349 beds, 13 operating rooms including hybrid and IMRI rooms and laboratory space. Outpatient facilities include 6 operating rooms, cafeteria, MRI, and Linear accelerators.

A new central plant provides steam, heating hot water, chilled water and 10 megawatts of back-up power. Drawings were produced in collaboration with the contractors using Lean and BIM design processes.

Following Green Guide for Healthcare standards, the innovative mechanical systems, including heat recovery, variable volume and efficient fan selections and configurations, reduce energy consumption by 38% compared with new, hospitals and 50% compared to older hospital designs. As a result of innovative plumbing and mechanical system designs, water consumption was also reduced by 36%.

Green innovation has also paid off in maximizing the available utility rebates for energy conservation.



Lodi Memorial Hospital

Lodi, California, USA

The new, 4-story south wing hospital addition of 130,000 replaces 90 patient bedrooms, along with the emergency and urgent care departments.

A new 14,500 ft² central plant replaces the existing chiller plant and medical gas utilities serving the entire campus. It houses emergency generators and domestic water heaters to serve the south wing addition.

The central plant can accommodate the future addition of heating water boilers, domestic water heaters, steam boilers, and emergency generators to serve the entire campus.

AWARDS

- Project Excellence Award Winner from National Electrical Contractors Association (NECA) 2011



California Pacific Medical Center

San Francisco, California, USA

The campus will be the largest Sutter Medical Group Hospital in California. Designed to accommodate 343 beds for adults and women/children, the new hospital is organized around comprehensive centers of care. These provide surgery, obstetrics and imaging services to support inpatient units such as pediatrics, pediatric intensive care unit, intensive care unit, critical care unit and psychiatry, cafeteria and food service kitchen.

The hospital HVAC system uses 100% outside air with heat recovery to prevent multi-drug resistant tuberculosis (MDRTB) transmission and to maintain optimal air quality. Variable air volume systems will supply patient rooms. The air-handling units are located above the podium and above the towers. The central utility plant (CUP) houses chillers, boilers, cooling towers and emergency generators and is located at the top floors of the South Tower.

This project utilized the Integrated Project Delivery (IPD) method, with a collaborative design and management approach as well as Building Information Modeling (BIM) allowing for real-time conflict identification and resolution. The project is designed to meet the LEED Silver rating, making it one of the largest hospital projects ever to seek LEED certification.

The project is currently under construction. It will have a total area of 1 million ft² with an estimated construction cost of 1.2 billion USD.



Kaiser Fontana Medical Center

Ontario, California, USA

This hospital will meet the new rigorous seismic safety standards established by the State of California under Senate Bill 1953 mandating that all hospitals remain functional after a major seismic event. The project includes a central plant and a support building housing medical offices, radiology, a pharmacy and a specialty clinic. The new hospital houses a variety of specialty services including a cardiac surgery department, a 51-bed emergency department, pediatric and neonatal ICU, inpatient dialysis unit, pediatrics, ICU, labor and delivery, cardiac cath lab and surgery.

The Design-Assist project delivery method was selected for this complex project in order to assure delivery on-time and on budget and the team utilized building information modeling (BIM) 3D modeling and coordination technology.

The new hospital structures will incorporate numerous sustainable and energy efficient design solutions with environmentally conscious features including energy efficient lighting, electrical, HVAC and plumbing systems including the use of reclaimed water for landscaping and cooling towers.



Kaiser Los Angeles Medical Center

Los Angeles, California, USA

The Los Angeles Medical Center (LAMC) is one of Kaiser Permanente's largest inpatient hospitals in California. This replacement hospital will provide comprehensive acute inpatient care, including the most advanced tertiary care, cardiovascular surgery, pediatric intensive care, neurosurgery, spine surgery and high-risk obstetrics.

The tight urban site allowed for only a 100,000 ft² footprint for the main hospital with no more than seven-story above grade and necessitated a highly efficient layout using vertical integration of hospital units to maximize the use of space.

The hospital HVAC system uses 100% outside air with heat recovery to prevent MDRTB transmission and to maintain good indoor air quality. The Central Plant housed centrifugal and gas engine-driven chillers, boilers and emergency generators.



Al Amal Psychiatric Hospital

Dubai, UAE

The Al Amal Psychiatric Complex is a 250-bed, 1.2 million ft² facility on 24 acres.

It serves as a prototype facility show-casing a unique design and aesthetic approach that attends to all levels of adult and adolescent psychiatric and/or drug and alcohol rehabilitation in both inpatient and outpatient, secure and non-secure settings.

The design concept aims to provide a peaceful and serene environment for both patients and visitors that respects and reflects the culture and values of its clients while relieving the stigma often associated with mental health afflictions.



AWARDS

- Best Hospital of the Future - Middle East Hospital Build & Infrastructure Awards 2014



Healthcare Projects in Singapore

Singapore

Ted Jacob Engineering Group (TJEG) has been commissioned by the Singapore Ministry of Health via Surbana Jurong Consultant to provide technical assistance in the development of several hospitals in the country. TJEG scope of work is Peer Review, Conceptual, Schematics, Design Development, and subsequent stages of construction documents including construction administration. These projects include:

- Singapore Outram Medical Center Master Plan - US\$1.5 billion.
- Singapore Woodlands Integrated Healthcare Campus - US\$1.2 billion.
- Mixed use development at community Hospital site in SGH Campus. Scope of work is Peer Review for conceptual, schematics and design development stages of the project, US\$500 million.
- Singapore National Center for Infectious Diseases at Jalan Tan Tock Seng - US\$120 million.



Outram Medical Campus



Woodlands Integrated Healthcare Campus



Singapore General Hospital



National Center for Infectious Diseases

Kuwait University Health Sciences Campus

Sabah Al-Salem University City, Kuwait

The overall land area allocated for the Kuwait University Health Sciences Campus is 830,000 sqm with a total built-up area of 600,000 sqm. Student enrolment will be 5,000.

Hospital and Clinics

The hospital will be a 600-bed medical facility along with Emergency Medicine and Medical Laboratories as the main specialties with Diagnostic and treatment, Ambulatory care and Inpatient units.

Research Center

This part of the facility will be built with a net area of 100,000 sqm distributed between the 5 colleges: Medicine, Dentistry, Allied Health Sciences, Pharmacy and the School of Public Health. The research center will include an animal house with a total area of 8,600 sqm.

Colleges

The 5 colleges, including faculty club, will separate male and female students and will have a total area of 340,000 sqm.

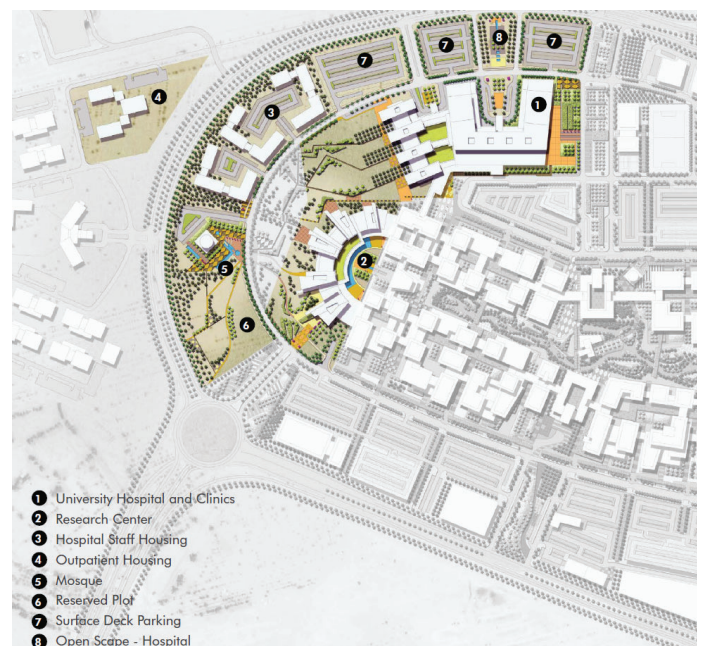
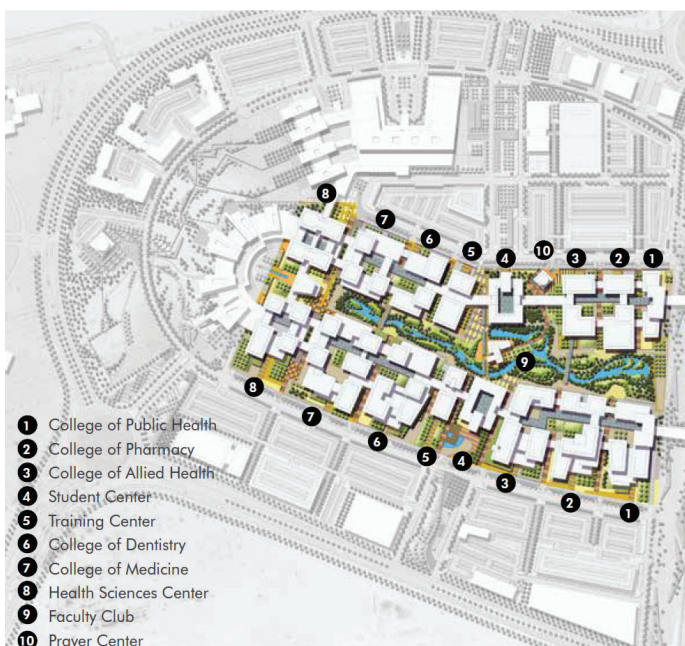
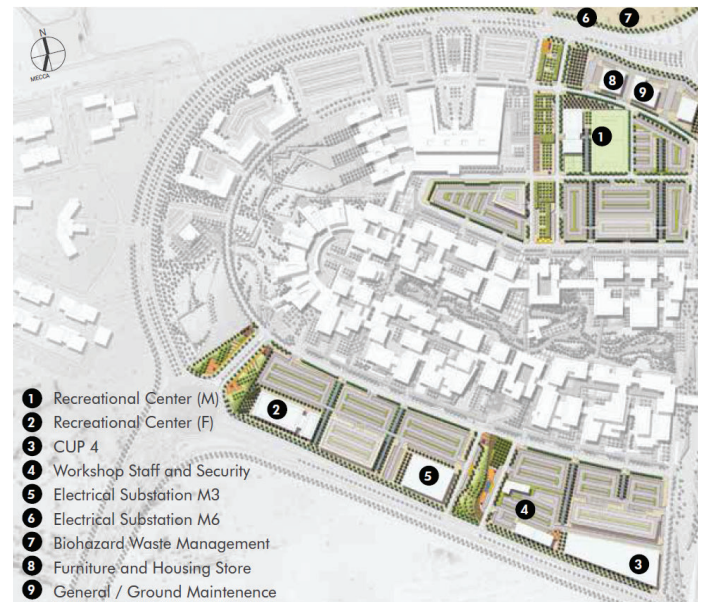
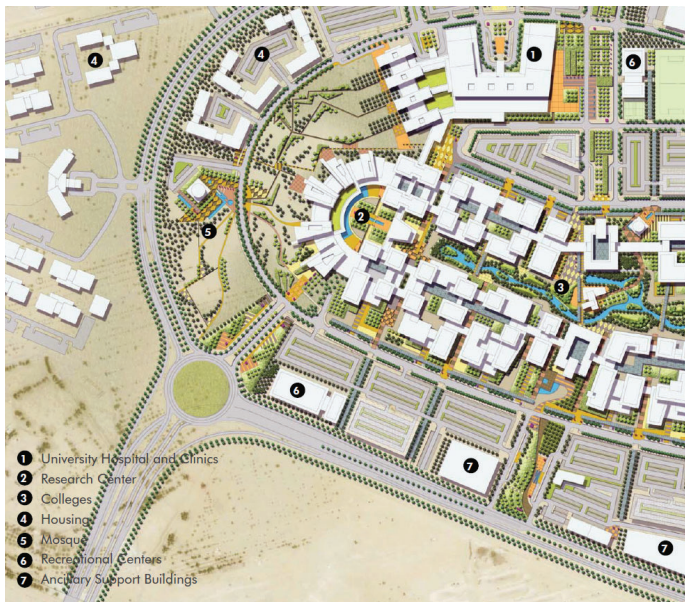
Parking

Parking will be two level underground for a total of 10,000 vehicles. This will eliminate on-grade parking making the campus more inviting.

The development will be serviced by two 30,000TR chilled water central plants connected via tunnel servicing the whole site.

The project seeks a minimum LEED Certification.

The design will be developed to BIM LOD300.



Coalinga State Hospital

Coalinga, California, USA

The project consists of a 1,500-bed mental health treatment facility and support buildings including central plant, maintenance, sewage and wastewater treatment facilities and water storage tanks. Also included are a major administration building, visitor's center and a PBX building. The project site is 115 acres.

Power for the facility is provided from the PG&E Coalinga substation at 12 KV to the main switchgear in the central plant. From there, power is distributed at 12 KV in a loop configuration to pad-mounted transformers throughout the site.

Emergency power is provided by four 2000 KW, 4160 generators located in the central plant. The generators are connected to paralleling synchronizing switchgear. Power is distributed in a loop configuration to pad-mounted transformers located at various locations.

Electrical systems are state-of-the-art, with features that provide for reliability redundancy and power monitoring for all major systems. An optical fiber system is used to network the entire site.



Mills Peninsula Hospital

Burlingame, California, USA

The 7-story 311-bed hospital replaces the existing Mills Peninsula Hospital in its entirety and will consist of the 460,000 ft² Hospital and adjacent 180,000 ft² Professional Office Building.

The new hospital includes Emergency Department, Operating Suites, 24-hr Pharmacy, Acute Care, Critical Care, Family Birth Center, Skilled Nursing Facility, Behavioral Health, Diagnostic and Treatment Services, Cafeteria Kitchen, Administrative and General Services.

The hospital is served by a 100% outside air HVAC system with heat recovery to maintain proper pressurization, cooling and indoor air quality.

Power for the facilities is provided by PG&E at 12 KV to the main switchgear in the Central Utility Plant. From there, power is distributed at 12KV to substations throughout the site. Emergency power is provided by three 2100 KW,



AWARDS

- Technology Award for New Healthcare Facilities - ASHRAE Golden Gate Chapter First Place Awards 2013
- Technology Awards for New Healthcare Facilities - ASHRAE Region X First Place Award 2012-2013

Yukon-Kuskokwim Health Corporation

Bethel, Alaska, USA

The project consists of an 85,000 sf hospital remodel and a new 175,000 sf building including I-Occupancy hospital space and B-Occupancy clinic space as well as a new central utility plant.

The energy savings of our systems as designed based upon ASHRAE 90.1 were 35.0% for the retrofitted hospital and 41% for the new building. (19 LEED points for the hospital and 20 LEED points for the new building).

TJEG has been contracted to develop the Mechanical and Electrical Engineering Services for this hospital, which will be completed in 2020.



Children's Hospital Los Angeles

Los Angeles, California, USA

This new 278-bed patient tower of 425,000 ft² was designed to meet the seismic standards required by California State Senate Bill 1953 (SB1953). The hospital provides acute care pediatric facilities, diagnostics and ancillary services, as well as a Level I emergency department / trauma center. The majority of the structure is seven stories, with an emergency heliport located on top of the tower.

The new Patient Family Pavilion is an eight-story building which includes 222 patient beds for pediatric and neonatal intensive care, pediatric ICU, laboratory, material management and administration services. The building includes one level below grade and seven levels above grade.



AWARDS

- Award of Excellence honoring outstanding architecture and design from the Los Angeles Business Council 2011

International Medical Center (IMC)

Jeddah, KSA

TJEG is designing a new 10 story hospital expansion tower at the International Medical Center (IMC) in Al-Ruwais, Jeddah, Saudi Arabia. The project consists of an expansion tower for the existing hospital with approximate area of 24,500 m². The tower will be built in the existing ER parking area in direct connection with the existing hospital and will expand the inpatient wards by 100 beds for a total of 400 inpatient beds and also by expanding the outpatient services, existing ICU, OR, ER, Medical imaging and all support services.

A Medical College is proposed to be set up at the same site providing collaborative teaching, training and research facilities. The project will be situated on a plot of land measuring 13,000m² and 43,823m² of built-up area adjacent to IMC hospital. The proposed medical college will initially undertake 1,100 graduate students from and is equipped to be expanded to offer post graduate courses in various clinical subjects. It is also planned to have training facilities for nurses and technicians.



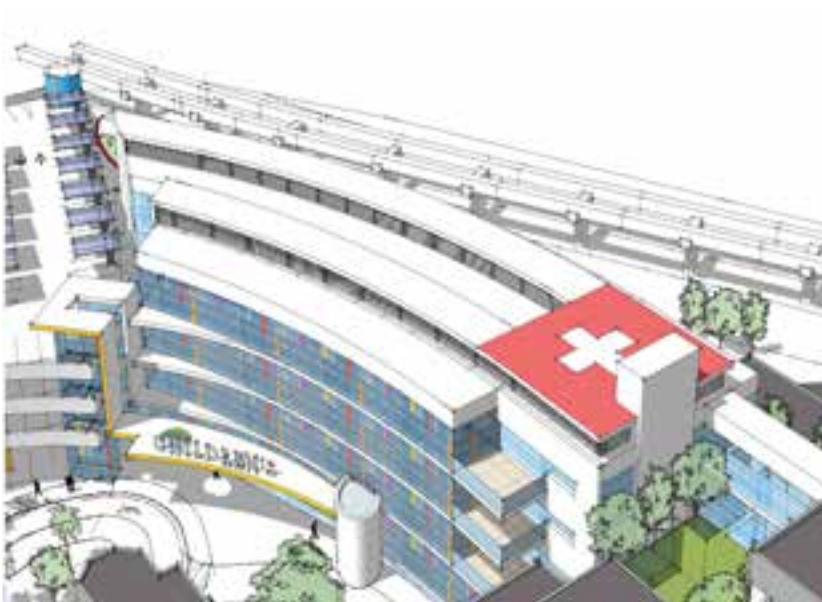
Children's Hospital Oakland

Oakland, California, USA

The new 2012 Master Planning for the campus includes a new Outpatient Center, Patient Pavilion, Central Utility Plant, rerouting major utilities, Inpatient Remodel, and a new parking garage.

Phase 1 of the Inpatient remodeling consists of phased renovations of the Post Anesthesia Care Unit, Pediatric Intensive Care Unit, Neonatal Intensive Care Unit Rehab and Main Entry.

Over 100,000 ft² of renovation will improve efficiencies and bring departments to the latest standards in healthcare design. Patient Pavilion Phase 2 is a new 145,000 ft², 5 story building that will provide 72 medical surgical beds and two floors of administration support.



Babil Teaching Hospital

Al Hillah, Iraq

This 400-bed teaching hospital under the auspices of the Republic of Iraq Ministry of Health is located in Al Hillah, Iraq in the province of Babil. Its built up area will be 850,000 ft².

Here, between the Tigris and Euphrates rivers lay the ancient ruins of Babylon (Babil, after which the region is named) in what was known as Mesopotamia, the cradle of civilization. The design concept for the project was based on the Hanging Gardens of Babylon and refers to significant contributions to geometry and astronomy of that era.

The iconic architectural design is coupled with engineering excellence in its use of a 100% Outside Air with Heat Recovery system, Displacement Ventilation system, and the use of the “hanging gardens” for shading. The building is designed towards LEED Gold standards.



Republic of Iraq - General Hospitals Maternity / Women Hospitals

Iraq

The key design aspects of environment, way finding, operational efficiency, staff effectiveness and market focused image were enhanced through subdivision of the hospital into its primary elements: a multi-specialty outpatient medical center, a high technology diagnostic and treatment center, the critical care wing, the intermediate care wing, a rehabilitation and medical inn, and staff residences.

The hospitals located in Wasit, Tamim and Salah Al Dein will accommodate 260 beds in a 183,000 ft² facility. The 270,000 ft² hospital located at Babylon will provide 400 patient beds, while the 160,000 ft² facility at Karkh will hold 200.

The hospitals' HVAC system is 100% outside air with heat recovery.



2

HOSPITALITY

The Capital Gate 'Feature Tower' is an iconic building located on the Abu Dhabi National Exhibition Center site. It is distinguished by a dramatic steel and glass facade with a striking organic form.

With its cantilevered tea lounge and open air pool deck, it provides a unique presence on the skyline of Abu Dhabi and creates a memorable identity to the exhibition center.

A sculptural stainless steel 'splash' flows down the front and at low level forms the hotel entrance canopy, flowing over the existing grandstand and acting as a solar shading device for both the building and the grandstand seating. A free form internal atrium with a dynamic glass roof brings natural light and space deep into the tower.

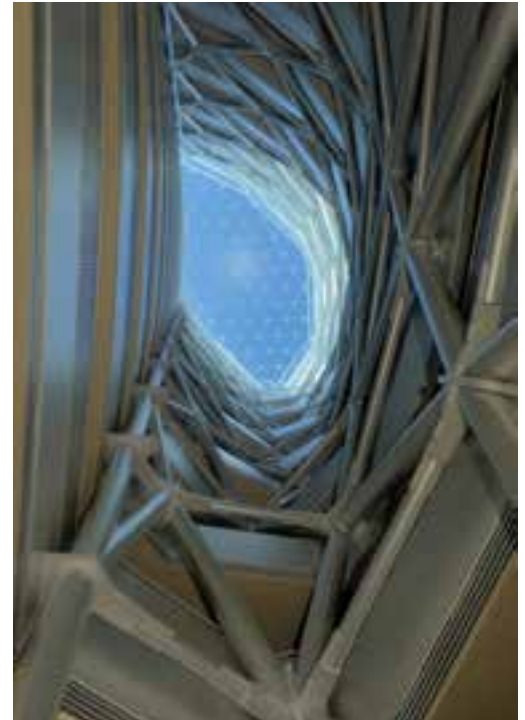
The building's external lighting is designed to minimize both light pollution and energy consumption,

based on a combination of low-level landscape lighting with façade lighting comprising a net of compact LED clusters integrated into the design of the steel glazing system.

The building is 35 levels high and offers over 16,000 m² of high quality office space, as well as Abu Dhabi's first Hyatt hotel, 'The Hyatt Capital Gate'. It stands at over 160 m tall.

Structurally, this challenging building sits on an intensive distribution of 490 piles which have been drilled 30 metres underground to accommodate the gravitational, wind and seismic forces caused by the distinctive lean of the building.

In January 2010, Capital Gate Abu Dhabi was recognized as the world's furthest leaning man-made tower by the Guinness Book of World Records.



AWARDS

- Best Commercial / Retail Project Award (Future) - Cityscape Abu Dhabi, Middle East Real Estate Awards 2009
- Best Overall Project - Cityscape Dubai Awards 2011
- Best Commercial/ Mixed Use Project - Cityscape Dubai Awards 2011
- Guinness World Record for World's Farthest Leaning Manmade Tower
- Featured in National Geographic's Megastuctures TV show



Hyatt Regency Dubai Creek Heights

Dubai, UAE

Situated in Healthcare City, these 166.5 m high towers were designed to provide amazing views of Dubai Creek and Sheikh Zayed Road skyline.

The 200,000 m² development contains retail, offices, hotel, and serviced apartment units. The project consists of mixed-use twin towers and is made up of three levels of

podium, 43 floors of apartments, 34 floors of hotel tower and four levels of parking below grade.

The ground floor comprises hotel facilities, meeting rooms, function spaces, auditorium, lobbies and service areas.



The H Dubai (formerly The Monarch Towers)

Dubai, UAE

The H Hotel and Office Towers, located at plot no. 1 Sheikh Zayed Road, is comprised of a 33 storey hotel building and a 39 storey office building.

A key feature is the duplex cantilever suite of 1,120m² that sits on the 32nd and 33rd floors appearing to co-join the two towers.

It houses the 5 star H Dubai Hotel, which sits on a large podium accommodating retail outlets, restaurants, a ballroom, meeting rooms and a luxury health club.



W Dubai The Palm

Dubai, UAE

This Luxury Resort, situated on the Crescent of the Palm Jumeirah, will be a world class hotel resort and residential complex with spa, pool areas, water features and other amenities comprising approximately 100,000 m of accommodation.

The resort will have 300 hotel rooms and 45 super luxury duplex, triplex apartments and penthouses.

The undulating building form takes full advantage of the views in this unique location by opening up vistas to the waterfront, creating intimate court spaces along the water edge.

Restaurants, retail outlets and function facilities are mostly located on the ground floor of the hotel wing, with a destination bar and restaurant at high level to take full advantage of the dual aspect views.



Marriott Hotel in the Diplomatic Quarter for Saudi Hotel and Resorts Company

Riyadh, KSA

TJEG has been appointed as the MEP and Structural Engineering Design Consultant for a five-star hotel in the Diplomatic Quarter in Riyadh for Saudi Hotel and Resorts (Sharaco).

The hotel is a 40,000 m² structure clad in a unique facade that evokes the Saudi landscape and provides solar shading, with the center of the development designed as an oasis-like podium.

TJEG and the project team developed the project from concept to detailed design. It will accommodate 220 residential units and 140 luxury hotel suites.

This project has been nominated for multiple awards due to the uniqueness of its design and its inclusion of sustainable strategies.



Hilton Garden Inn & Double Tree by Hilton Hotels

Riyadh, KSA

TJEG is developing the Structural, Civil and MEP Engineering Design for this hotel in the Kingdom of Saudi Arabia.

The development is a large scale dual Hotel construction project that will be the first of its kind in the Middle East.

The 260-room Hilton Garden Inn development and the 110 serviced apartments of DoubleTree Suites by Hilton will share a host of business facilities including a large, multi-purpose function room, eight meeting rooms and four boardrooms. Individually, the Hilton Garden Inn Riyadh Financial District property will feature a business center, swimming pool and health club as well as a restaurant and lobby lounge.

The 110 serviced apartments of DoubleTree Suites by Hilton Riyadh will include a full range of options from studios to one and two bedroom apartments. The property will also feature a business center, health club, swimming pool, lobby lounge and two restaurants.



Aloft Abu Dhabi

Abu Dhabi, UAE

The 65,000m² hotel was delivered to a tight delivery program since concept design to construction and handover. TJEG developed the Structural, Civil and MEP Engineering, as well as the site supervision for these disciplines.

With its urban influenced design, the 16-story, 408 key hotel resides on top of the concourse and is linked directly to the Abu Dhabi National Exhibition Center, a key part of the Capital Center mixed use development

The loft-like rooms with high ceilings and oversized windows provide large, stylish bathrooms and hi-tech office and entertainment facilities.



Hilton Garden Inn Dubai Mall Of The Emirates

Dubai, UAE

TJEG developed this project along with the Main Contractor in the “Design-Build” Scheme.

The hotel is a 4 star development with 370 executive rooms, located in the district of Al Barsha, only a few steps away from Mall Of The Emirates. The property features a business center, swimming pool and various specialist restaurants.

TJEG was commissioned with all engineering disciplines from concept design up to construction supervision.

The project has been awarded LEED Gold certification.



Courtyard by Marriott Hotel for Al Homaiddhi Holdings

Riyadh, KSA



TJEG has been appointed as the MEP and Structural Engineering Design Consultant for a Courtyard by Marriott hotel close to the King Abdullah Financial Center in Riyadh.

The hotel will occupy a 12,000 m² plot and will have a built up area of 27,000 m². It includes single and double units as well as suites, business center, swimming pool, gym and ballrooms.

TJEG and the project team are currently developing the Detailed Design for the project.



Hotel Ibis World Trade Center

Dubai, UAE

The engineers at Ted Jacob Engineering Group were commissioned to design the Structures and MEP for the Dubai International Convention Center.

TJEG developed the Structural and MEP Engineering for the existing project, as well as for the proposed extension.

The Ibis Hotel, with 420 beds, was an integral part of the DICC development which incorporates a multi-use exhibition hall, a 20 story office tower, a 7 story car park and 2 hotels.



3

RESIDENTIAL

Eternia and Enigma Towers in Mulund

Mumbai, India

This project being developed by Oberoi Realty Limited at Mulund (West), Mumbai is a residential development mainly comprised of two plots namely CMD and PMD (Now Eternia and Enigma).

The CMD and PMD plots will include two 65 story and three 63 story towers respectively. Each plot will have a common podium for the towers built on multilevel car parks.

The other constituents of the development are two low rise residential blocks for the Economically Weaker Sections (EWS).

The development will also include a two storied sales center that is to be designed flexibly in order to be converted into an office facility once the residential property is fully sold out.

TJEG have been appointed to undertake concept and scheme designs for MEP services on the towers and parking levels followed by a peer review of the Contractor's detailed design. TJEG's involvement on the EWS blocks and sales center will however extend to encompass detailed design and tender documentation in addition to concept and scheme.



Oberoi Sky City in Borivali East

Mumbai, India

Oberoi Sky City is a residential development with ample open spaces and places to relax and walk. The project is comprised of high-rise buildings up to 60 stories with exclusive 3 and 4 bedroom spacious apartments with modern amenities and design.

TJEG is developing complete engineering design for this development, from concept to construction administration, for both MEP and infrastructure disciplines.

The Borivali East Complex is spread over a land of 25 acres.



Nshama Town Square

Dubai, UAE

The Zahra Breeze apartments in Town Square Dubai include studios, one, two and three bedroom apartments as well as 4 bedroom duplex units.

TJEG was commissioned with the MEP Engineering design of this 130,000 m², 9 story residential and commercial project.



Serenia Residences Palm Jumeirah

Dubai, UAE

Serenia Residences is an exclusive development that offers panoramic views across Palm Jumeirah and the Arabian Gulf.

This 70,000 m² beach front destination incorporates luxury apartments and penthouses, gymnasium, pools, gardens and a tennis court.

Ted Jacob Engineering was commissioned with the engineering design and post contract supervision for the development, including structural, civil, mechanical, electrical and low voltage systems design.



The Jewels

Dubai, UAE

The Jewels is a high-quality residential tower development within the master planned waterfront community of Dubai Marina. An iconic and easily recognizable development combining twin towers of 20 stories each.

The development comprises 122 apartments with five villas at the base. It also utilizes the waterfront area as a public space where seven retail outlets are planned for the future.



Silverene Towers

Dubai, UAE

Located in Dubai Marina, the 34 and 26 story residential towers have two levels of common retail/parking and three basement levels. The towers sum up to 117,600 m² built up area.

The engineers at TJEG developed the MEP and Structural Engineering Design, as well as supervision.



Marina Heights

Dubai, UAE

The Engineers at TJEG were appointed as design consultants and project managers for the Marina Heights Tower for The Abdul Salam Al Rafi group.

Completed in 2006, the 55-story building incorporates both commercial and retail space within the podium.

The building utilizes the use of sliding timber screens at podium level to allow both introverted and extroverted outlooks from the podium residential units. Pre-cast screens provide solar and wind protection to the side elevations.



Carson - The Drive at AKOYA

Dubai, UAE

Carson - The Drive at AKOYA comprises three residential towers commanding far-reaching views across the entire AKOYA by DAMAC development.

With its supreme location right on the Trump International Golf Club Dubai and The Drive at AKOYA, there's a staggering choice of outdoor facilities within easy reach.

The development has a built up area of 1.6 million m² and includes studios, one and two bedroom apartments, premium retail, fine dining and children's play areas. The three 30 story towers stand on a 3 level common podium.

Ted Jacob Engineering Group was appointed with all engineering design services for this development, which is currently under construction.



Exhibition Center: ADNEC Development - Phase 2

Abu Dhabi, UAE

The Abu Dhabi National Exhibition Center is a world-class multi purpose complex which comprises over 55,000m² of uninterrupted gross internal exhibition space, together with 2 Hotels.

Phase 2 of this development sees the addition of five exhibition halls linked by a public concourse complete with front and back of house areas.

The state-of-the-art multi purpose exhibition complex includes a 3,168 m² atrium, 18,000 m² of U-shaped concourse, 2,000m² of food courts and a sizeable multi-story car-park.

The halls, constructed in a U-shape, are fully linked with operable walls that can be retracted to provide a continuous space. Hall dividers can be partially removed to allow a show to expand to the concourse area. Included in the Phase 2 development is the design and construction of the Aloft Hotel.

The functional design of the ADNEC Exhibition Center has been pivotal to the success of the venue. Since opening, it has attracted over one million visitors a year, and has contributed to the growth of Abu Dhabi's exhibition industry of over 25%.



Mayasem Gardens

Jeddah, KSA

The Mayasem project is being designed to be a landmark mixed-use development in the north of Jeddah, in the Kingdom of Saudi Arabia. It comprises 160 hectares and will be one of the most desirable locations in the region.

The client, Shamayel United Development Company, is committed to build livable and sustainable cities in a rapid growing urban environment.

Ted Jacob Engineering Group has been commissioned to design the MEP services for a total of 11 towers on 3 podiums within the Mayasem development. The towers include residential units in one, two and three bedroom apartments, as well as common community areas, for a total built up area of 670,000 m².

The buildings range from 11 to 15 stories high.



Deerfields Town Square Shopping Mall

Abu Dhabi, UAE

Deerfields Town Square is a high quality, themed shopping mall located in the Al Bahia region of Abu Dhabi.

The 95,000 m² building is a testament to TJEG's Design and Engineering capabilities, due to the need for large open spaces, large floor to ceiling heights, extensive internal atrium and clear story glazing along the central areas of the mall, bringing natural light into the retail areas.

TJEG's project delivery strategy and fast track design allowed for an early start on site and with its one-stop shop approach has ensured a seamless and integrated approach to design and delivery for the client who could accelerate the construction process.

Deerfields Town Square was inaugurated in 2013.



Deira Islands Mall

Dubai, UAE

The Deira Islands Mall will be the main attraction of this development, located opposite the historical Deira district in Dubai.

The mall includes over 900 shopping and F&B establishments, cinema, and a multilevel parking, extending over a built up area of 970,000 m².

The project's main feature will be the incorporation of retractable roofs or skylights, which will open during the winter months to convert the development into an outdoor shopping destination.

There will be a total of 12 retractable frames, with sizes ranging from 1,500 to an impressive 13,000 m². The largest skylight is the dome shaped roof for the central atrium.

Ted Jacob Engineering Group was commissioned to develop the engineering design for this iconic project, from concept to detailed, tender and construction documentation.

The scope of work includes structural, civil, mechanical, electrical and specialist engineering design.



Dubai International Convention Center

Dubai, UAE

The Dubai International Convention Center incorporates a 13 story office tower and multi-use exhibition hall located within the Dubai World Trade Center complex.

The Convention Center includes 9 exhibition halls, 10 conference halls and 19 meeting rooms. It can accommodate more than 6,500 delegates in just one of its multi-purpose halls.

TJEG provided the Structural, Mechanical and Electrical Engineering Design for the 45,200 m² Convention Hall, 67,300 m² Parking, 24,000 m² Exhibition Hall, and 47,700 m² Office Building & Podium. The project was completed in 2003.



Dubai International Financial Center

Dubai, UAE

The Dubai International Financial Center (DIFC) was conceived by the Government of Dubai for the benefit of the UAE and the wider region as a whole. Its remit is to create a regional capital market, offering investors and issuers of capital world-class regulations and standards.

In 2005, the engineers at TJEG were commissioned to design the six gate precinct buildings to provide a transparent and elegant backdrop to the existing Gate Building.

There is easy movement from building to building within a controlled environment, with a fluid link to the vibrant cafés,

restaurants and terraces around the natural landscaped plaza.

Externally, the predominant material is high tech full height glass that clads the majority of the building. This is contrasted with warm colored granite and fabric shades at lower levels. Completed in 2007, the precinct buildings are zoned to provide a mix of uses in a people friendly environment. Office floors provide flexible office space with views into the plaza, the adjacent Emirates Towers building and the adjoining DIFC developments.



Basra Palace Hotel

Basra, Iraq

The project is located on the Arabian Sea Basra on a plot with area of 18,000 m².

A 5 star hotel of 400 to 500 keys will be designed to standards of operators such as Grand Hyatt, Hilton International or Kempinski. The hotel operator will be selected during the subsequent design phases.

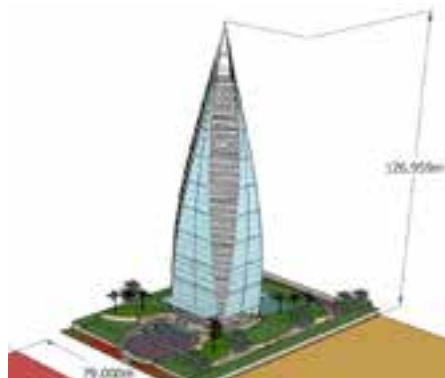
A food court will be incorporated, covering 2 floors and an area of approximately 8,000m², partially indoors and outdoors.

Conference areas will have moving partitions suitable for the use of Government and private organisations.

The reception area will include boutique shops, and the development will also have one gym for men and other for women, swimming pool and associated leisure facilities, wedding hall, integrated underground parking.

The second to highest floor will contain a series of VVIP suites with separate entrance and dedicated elevator, while the top floor will comprise private offices for the client.

The concept design options are based on a 25 to 30 story tower building sitting on a landscaped plinth, maximizing the views over the sea.



Hotel, Office Tower and Retail Development

Erbil, Iraq

TJEG is working as Lead Consultant for a Mixed Use project in Northern Iraq.

The development includes a 215 key hotel, 14,500 m² of office space and 2000 m² retail.

The hotel is being developed for a prestigious international brand.

TJEG has included the application of sustainable technologies to ensure the project obtains LEED certification, which will be one of the first in Iraq.



5

SPECIAL PROJECTS



Facebook Menlo Park Campus

California, USA

The Facebook Menlo Campus will be occupied by up to 6,600 workers on the nine-building East Campus (57 acres) and as many as 2,800 workers in the five-building West Campus (22 acres). The two campuses will connect through a tunnel.

Our projects with Facebook consist of tenant improvements of their headquarters buildings, including medical facilities, offices space and meeting rooms.





Google

California, USA

Google has been estimated to run more than one million servers in data centers around the world, hosting the most visited website.

TJEG has worked with Google on more than 25 different locations. Our projects include tenant improvements of their headquarters buildings, development of Google design & sustainability standards, office space and lab development. We have also conducted a number of peer reviews.



Oracle Corporation is one of the largest companies specializing in developing and marketing computer hardware systems and software products, with offices all around the world.

TJEG's experience with Oracle includes more than 150 projects throughout the U.S. ranging from complete buildings build outs, data centers and partial remodels.



Bellevue, Washington



Chicago, Illinois



Minneapolis, Minnesota



Costa Mesa, California



Austin, Texas



Colorado Springs, Colorado

American School of Dubai

Dubai, UAE

Designed to be a model of best practices for sustainable design in the Middle East, the new campus for the American School of Dubai is set on a 27-acre site in the Al Barsha district of Dubai.

The school accommodates 1,600 students in a Pre-K through 12th grade curriculum. Organized along a series of linear garden spaces, nearly every classroom is designed to face either north or south to take best advantage of beneficial natural daylight. Sustainability was incorporated through various subtle modifications, such as walkways and courtyards open to cooling northerly afternoon breezes off of the Arabian Gulf.

Roofs are shielded with louvered screens, further protecting the school from the hot sun. Each classroom “building” is designed with operable windows on two sides along with roof vents to allow for passive ventilation to take the place of traditional air conditioning during mild winter months—November to February.



Kent College Dubai

Dubai, UAE

The Kent College is located in Mohammed Bin Rashid City in the Meydan District of Dubai. It is a group of three blocks of schools (Nursery, Junior, and Senior) around a series of central facilities that include sports, dining and performance centers. The development includes an auditorium with a 600 seating capacity.

Ted Jacob Engineering Group was awarded the design for MEP, Structural, Civil, ELV, and Fire & Life Safety Engineering.

The project has a capacity of 2,200 students and 250 staff, with a total built up area of 22,000 m².



Aviation, Terminals and Hangar Buildings

Dubai, UAE

Sheikh Zayed Air Navigation Center

Abu Dhabi, UAE
General Civil Aviation Authority

Structural and MEP design for a 18,000 m² complex comprised of:

- The Air Traffic Control Center building which houses the main air traffic control operations room and air navigation services offices
- Emergency Air Traffic Control Center building with back-up operations room, services and air-traffic control teaching facilities
- Three slender radio masts, elegantly incorporated, which required intensive structural analysis, to ensure oscillations due to high speed winds were acceptable

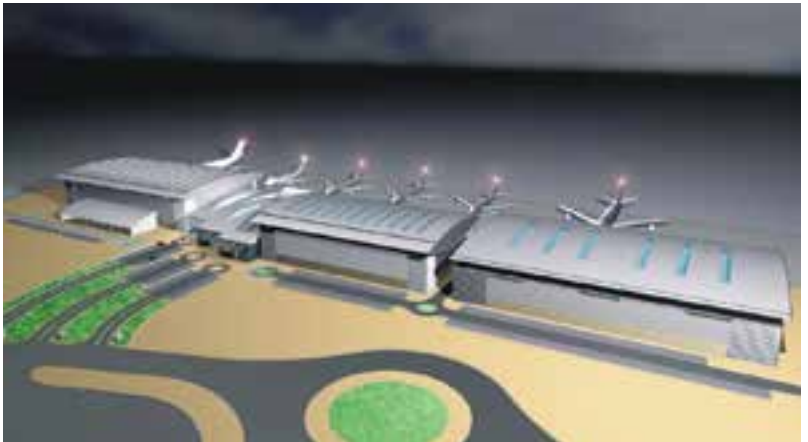


Executive Terminal & Hangar Buildings

Dubai, UAE
Dubai Civil Aviation

Commissioned to provide all services and project management for an Executive Terminal and Hangar facility for DCA sharing with two other aviation companies in Dubai International Airport.

The staggered aerofoil roofs are a response to vocabulary associated with aviation and adhere to the importance of roofscape within an airport.



Royal Flight hangars

Dubai International Airport, UAE
The Government of Dubai

Responsible for the design of this 16,300 m² hangar to accommodate two Boeing 727, one Boeing 707 and one Boeing 747, with administration and workshop facilities for the Royal Flight, together with access roads, standing areas and runways.

This commission was subsequently extended to include additional apron and hangarage to accommodate a Boeing 747.

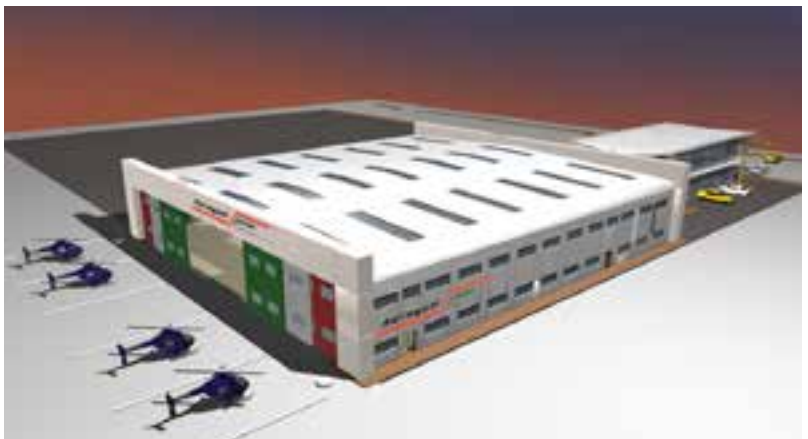


Aerogulf Hangar Facilities

Dubai, UAE

Commissioned to design a new helicopter office and hangar facility for Aerogulf at Dubai airport.

The facility accommodates 1050 m² of hangar space with a further 3100 m² of workshop and office space.



Townhome Units in Residential District for DACC in Dubai South

Dubai, UAE

Dubai Aviation City Corporation (DACC) Residential Districts vision is to create a walkable urban community with access to retail and all services from every part of the community. The town homes will be the first low density product at Residential District. The team has ensured the project's design style and criteria is in line with the Residential District's "Villages" project.

The project will have 240 townhomes, for a total GFA of 35,000 m² in a 46,803 m² plot. It will include a club house, outdoor pool and gym.

TJEG's scope of work for Infrastructure Design included:

- Internal road networks
- Electrical works
- Fire Fighting and Irrigation
- Sewage Network
- Street Lighting
- Storm Water
- Potable Water
- Telecommunication



Abu Dhabi National Exhibition Center (ADNEC) - Phase 4

Abu Dhabi, UAE

ADNEC Phase 4 is a mixed used development consisting of hotels, offices and residential buildings. The total site area is 150,000 m² with an overall GFA of 900,000 m².

TJEG was responsible for the overall design of all utilities including power (HV/LV), telecoms, storm water, irrigation, water, district cooling, foul sewer and gas.

TJEG was also responsible for obtaining all local authority approvals and on-site construction supervision.



Motorworld

Abu Dhabi, UAE

Located on a 350 hectare site to the East of Abu Dhabi, Motorworld is envisaged as the premier automotive retail experience for the region, housing all major car brands in a single convenient and easily accessible location. The project was planned to incorporate a total of 344 individual car showrooms, which are in turn supported by a range of complementary facilities including a driving school, car rental, registration center, testing location, service and specialty retail.

The design of the Motorworld masterplan establishes a clear division of functional zones and a natural circulation flow stemming from a primary curved spine. High profile automotive outlets are found along this main boulevard, with used car sales arranged in a more disciplined network of buildings.

Shaded pedestrian routes link each of the zones and will connect to future public transport routes passing through the site.



Infrastructure Development: Desert Rose, The Green City

Dohuk, Iraq

Desert Rose is a 1,000,000 m² agricultural development located in the Northern Kurdistan region of Iraq, approximately 20 km west of the city of Dohuk.

The project consists of many different plots within the development including industrial areas such as food production greenhouses, cold storage, packing & processing and mills. The development also incorporates mixed-use areas including retail, apartments, educational establishments and convention centers.

TJEG were responsible for all engineering services relating to the roads and infrastructure for the Desert Rose project, working closely with the architect during the Master Planning stage to develop a best practice concept. The team then progressed this design, ultimately preparing tender documentation to allow the award of a contract and construction of all roads and associated infrastructure prior to the development of the individual plots.



District Cooling Plants

UAE, KSA, Qatar

TJEG have designed multiple district cooling plants in the Middle East. These plants cater to large developments including the artificial islands, Palm Jumeirah, in Dubai.

Palm Jumeirah Crescent

Completed in 2008, provides 120,000 TR of cooling to the developments on the crescent. Total construction value was 450 million dirhams.

Palm Crescent Chilled Water Network

Specialist Engineering Consultancy Services for Hydraulic and Pipe Stress Analysis, Mathematical and Construction modeling, Design of Thrust Blocks and Anchors, Design of Supports for pressure testing of pipes and on site supervision during installation.

Jumeirah Village South

This district cooling network was designed to serve schools, residential buildings, community halls, commercial and business centers. The total built up capacity distributed across 6 district cooling plants is 320,000 TR.

Deira Islands Mall

The final built up capacity of this district cooling plant is 50,000 TR, including stratified chilled water thermal energy storage tank designed to generate 10,000 TR of peak instantaneous discharge. The plant will incorporate high efficiency centrifugal chillers configured in series-counter flow arrangement, and is being developed on BIM for improved coordination. Besides the mall, this plant will cater to 4 hotel buildings and Deira Island Towers.



ADTC Complex

Specialist Engineering services for assessment of solutions for the existing 11,200 TR capacity chilled water plant.

Barwa City and Barwa Commercial Avenue

Technical peer review for two District Cooling Plants with a combined capacity of 37,000 TR supplying chilled water to 124 ETS rooms serving Barwa City and Barwa Commercial Avenue in Doha, Qatar. This undertaking included development of tariff model for chilled water.



Downtown Jebel Ali

The project entailed the planning and conceptual engineering design of the Downtown Jebel Ali 20,000 TR District Cooling Chiller Plant.

The cooling capacity was designed in two stages for a 5,000 TR Temporary Chilled Water System and a 20,000 TR Permanent Chilled Water System.



Dubai South

Dubai South's LC2 and RC1 District Cooling Plants have a combined Cooling Capacity of approximately 60,000 TR. The scope of work entailed the start-up, testing and commissioning of the plant systems from a mothballed state to begin partial operations of the plants for the new and upcoming commercial and residential developments in the area. Both plants had undergone a long period of stasis, due to the varying development stages of the Dubai South District.



DEWA Al Sheraa Building

Dubai, UAE

The team at TJEG was retained by DEWA as the 'Project Innovation and Development Consultant' on their new Headquarters building located in Al Jadaf, Dubai. The scope of engagement on this project was to demonstrate Net Zero feasibility from conceptualization to finalizing the concept design.

The building, designed to accommodate 5,000 occupants, will have a built up area of 1.5 million ft². The development will incorporate 16,500 m² of photovoltaic (PV) panels capable of producing 3,500 kW hours of electricity with an Energy Utilization Intensity (EUI) of 70 kWh/m² per year.

Moreover, the Al Sheraa Building aims to be a Zero Energy Building (ZEB) with aspirations of being certified as LEED Platinum in addition to WELL Silver. The operations of installed MEP systems will be optimized and monitored by the use of a state of the art Building Management System.

DEWA's new headquarters will be directly linked to the Dubai Metro through an elevated air-conditioned walkway, thus promoting the use of public transportation reducing traffic and carbon footprint.



Solar Innovation Center

Dubai, UAE

The DEWA “Solar Innovation Center” will be a science, convention and visitors center, showcasing the Mohammed bin Rashid Solar Park and its facilities highlighting it as part of Dubai Integrated Energy Strategy 2030. The center will be host to Solar Technologies, its history, application and evolution as an essential energy generator. The center will open its doors to visitors, students, business people, and professionals.

The center will host events, workshops, conferences, and exhibitions.

The Innovation Center will portray a “green” Dubai, to be a leading example of sustainable development at regional and international level supporting the use of renewable resources. The project is designed to achieve LEED Platinum Certification.

The center will be able to celebrate and narrate the potential of solar power and renewable energy.

Ted Jacob Engineering Group has been commissioned to develop the Engineering Design and Project Management for this prestigious project, during both design and construction stages.



AWARDS

- Sustainable Project of the Year – Middle East Consultant Awards 2017
- Sustainable Project of the Year – Middle East MEP Awards 2017
- Sustainable Project of the Year – Middle East Architect Awards 2016
- Sustainable Project of the Year – Construction Innovation Awards ME 2016
- Highly Commended Sustainable Project – Construction Week Awards 2015
- Sustainable Project of the Year – Middle East Architect Awards 2014
- Future Leisure and Tourism Building Design - CITYSCAPE 2014



SABIC Home of Innovation - Demonstration Home

Riyadh, KSA

The Home of Innovation and the Demonstration Home at the Innovation campus located at Riyadh Techno Valley at King Saud University exemplifies the best and current sustainable home design. It has achieved LEED Platinum rating, the highest level of recognition by the U.S Green Building Council (USGBC), thus making this project the first LEED Platinum Certified Homes and Net Zero project not only in Saudi Arabia but the entire Middle East.

The team at TJEG was commissioned by the Main Contractor to carry out Net Zero verification and energy modelling in order to secure LEED Platinum certification.

The Demonstration Home showcases a vast variety of the latest commercially available technologies that assist Net Zero Energy use, including water conservation techniques and environmentally responsible building materials.



Kandalama Hotel

Dambulla, Sri Lanka

The Kandalama Hotel was constructed in Sri Lanka's historic cultural triangle's heartland, flanked by two World Heritage sites in an area of cultural and historical importance.

This 253,000 ft² hotel was built on stilts to maintain the natural rainwater flow with landscaping restored up to the column footings and 80% percent of the roofs planted with indigenous horticulture. The building was planned around the backdrop of a rock formation so as to provide a certain degree of passive cooling that helped reduce the overall cooling load, a major contributing factor in accomplishing the ASHRAE 90.1 - 1989 energy goal.

Water received from on-site deep wells is treated, prior to distribution in the building. The entire volume of waste water is recycled or re-used and any surplus returned to the aquifer. The building's total water and sewer needs are met from resources on site, with no connections to the utility.

The project was awarded LEED Bronze certification for LEED BD+C: New Construction (v1.0 pilot), making it the first LEED Green hotel in the world and the first LEED Green Building outside the USA.



Wafi City District Cooling Chiller Plant One

Dubai, UAE

Wafi City, a part of Dubai's diversified conglomerates, received LEED Silver Rating for its District Cooling Chiller Plant ONE (DCCP ONE) building on 7th June, 2006.

In August 2006, as engineers, project managers and LEED consultants for DCCP ONE, the team at TJEG appealed for an upgrade and subsequently defended their application for LEED Gold, making the project one of the first utility buildings to receive such recognition. This is also the first building in the Middle East to be awarded a LEED Gold rating.

The DCCP ONE's energy rating surpasses the ASHRAE 90.1 standard energy benchmark by more than 30%. The project also achieved the credits associated with enhanced commissioning.

Low-VOC materials, waterless urinals, light pollution reduction techniques, high efficiency cooling towers, alternative transportation systems and efficient waste management systems were some of the critical features implemented successfully to secure the LEED Gold certification.



ADNOC Headquarters

Abu Dhabi, UAE

Abu Dhabi National Oil Company (ADNOC) New Headquarters is a high-rise office complex located on one of Abu Dhabi's most prominent urban sites. The building incorporates numerous energy efficient and sustainable engineering features such as a double skin façade, photovoltaic glazing, LED lighting, high efficiency HVAC system and water saving technologies. The building was awarded LEED Gold certification under LEED New Construction v2.2 rating system.

This 342-meter high office tower comprises an underground parking, podium, an atrium and office tower of 75 floors. The total built up area of the complex is approximately 168,000 m². The north end of a typical floor plate accommodates offices overlooking scenic views of the corniche besides providing abundant natural light. Most public functions such as conference rooms, reception and restrooms are positioned towards the south facing façade which features a double glazed exterior skin that protects the building occupants from intense solar exposure whilst offering filtered daylight. A universal grid module was developed that integrates movable wall, ceiling panel, lighting and HVAC systems.

ADNOC and EJADAH retained the services of the team at TJEG to take the project to successful LEED certification under LEED 2009 for Existing Buildings: Operations & Maintenance rating system.

The team at TJEG undertook comprehensive LEED assessment, water and energy audits, identified LEED strategies for implementation by ADNOC and provided leadership in pursuing LEED Gold certification.

On 26th February 2018, the project was awarded LEED Platinum certification by the U.S. Green Building Council for demonstrating compliance with all the prerequisites and achieving 85 LEED points, making the ADNOC Headquarters the largest LEED Platinum for Existing Buildings project in the Middle East.





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