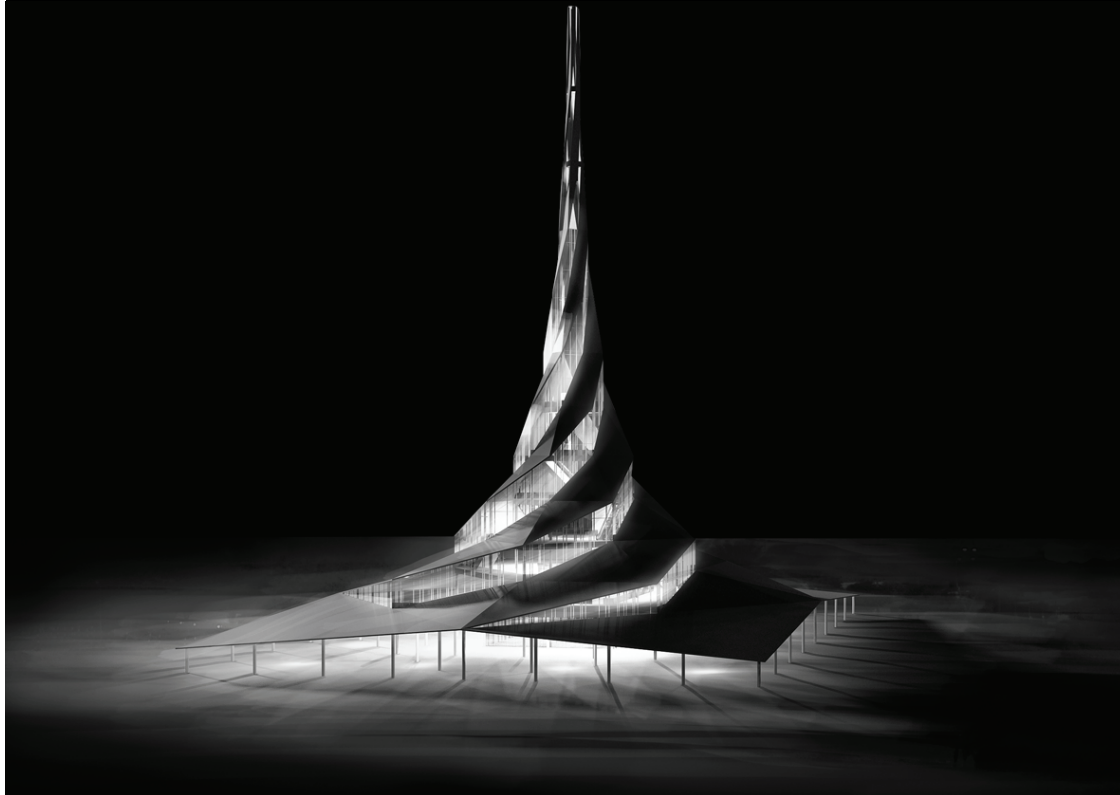


TED JACOB ENGINEERING GROUP

LEADING BY INNOVATION

[www.TJEG.com](http://www.TJEG.com)





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## Letter from the Chairman



Leading by Innovation is the core ideology of our success since our inception in 1985.

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

## Who We Are

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

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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 sq. ft. (213,677 sqm) 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 sq. ft. (195,000 sqm) 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.

### AWARDS

- Best Healthcare Project - ENR Regional Magazine 2014
- Technology Award 2nd Place Category III for New Healthcare Facilities - ASHRAE 2016





## Lodi Memorial Hospital

Lodi, California, USA

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

A new 14,500 sq. ft. 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 square feet 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 sq. ft. 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 square foot 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



## 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 sq. ft. Hospital and adjacent 180,000 sq. ft. 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 sq. ft. 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 m<sup>2</sup>. 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 13,000m<sup>2</sup> and 43,823m<sup>2</sup> 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.



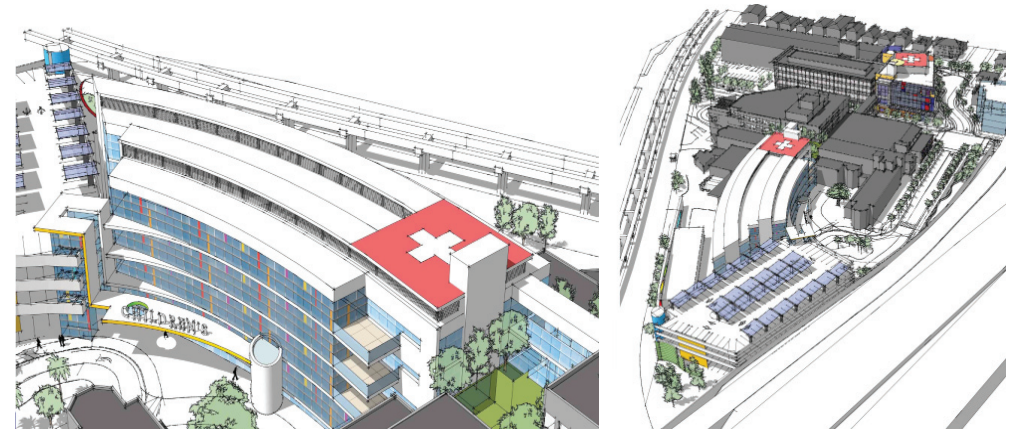
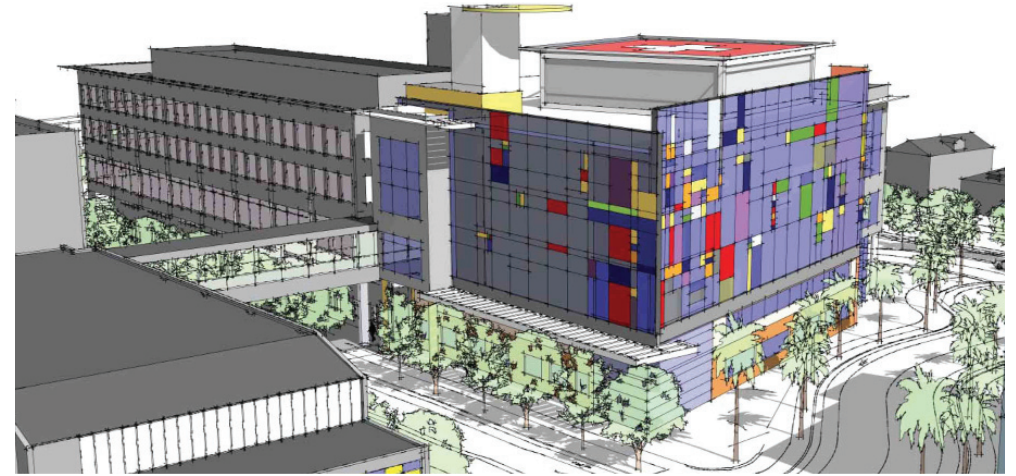
## Children's Hospital Oakland

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 ft<sup>2</sup> of renovation will improve efficiencies and bring departments to the latest standards in healthcare design. Patient Pavilion Phase 2 is a new 145,000 ft<sup>2</sup>, 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 sq. ft.

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.



## 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 sq. ft. facility. The 270,000 sq. ft. hospital located at Babylon will provide 400 patient beds, while the 160,000 sq. ft. facility at Karkh will hold 200.

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



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**Hospitality**



## Hyatt Capital Gate

Abu Dhabi, UAE

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.

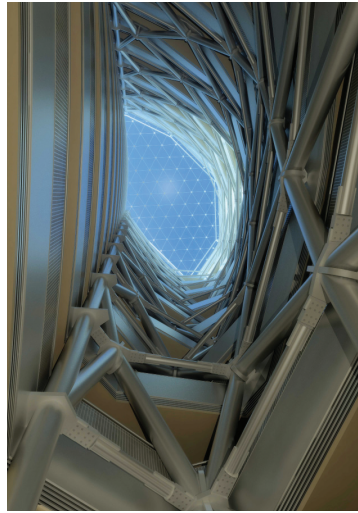
The building's external lighting is designed to minimize both light pollution and energy consumption,

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 m<sup>2</sup> 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 Megastructures TV show



## Hyatt Regency Dubai Creek Heights

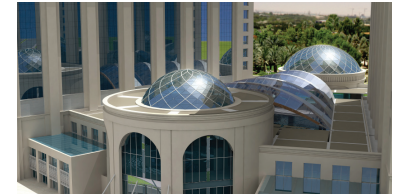
Dubai, UAE

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 m<sup>2</sup> 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 1,120m<sup>2</sup> 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<sup>2</sup> 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 m<sup>2</sup> 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 65,000m<sup>2</sup> 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 Homaidhi 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 m<sup>2</sup> plot and will have a built up area of 27,000 m<sup>2</sup>. 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

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**Residential**



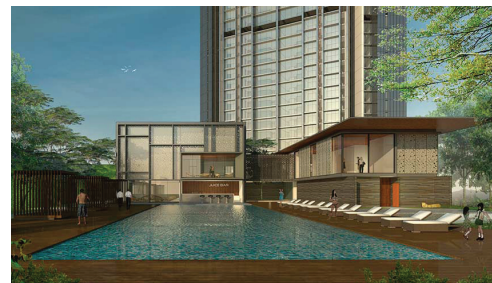
## Eternia and Enigma Towers in Mulund

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.



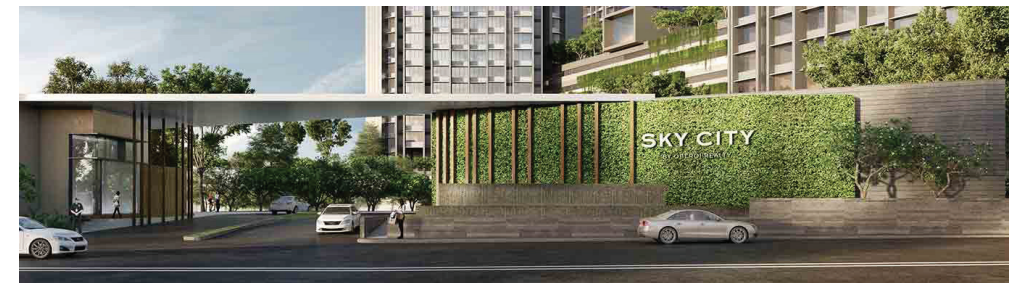
## Oberoi Sky City in Borivali East

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 m<sup>2</sup>, 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 m<sup>2</sup> 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.

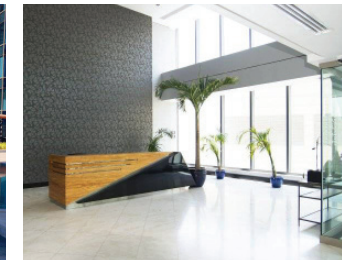
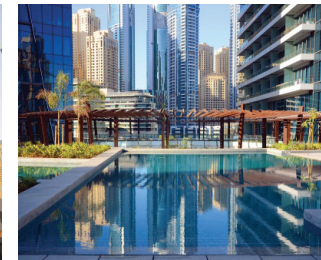


## Silverene Towers

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 m<sup>2</sup> 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 m<sup>2</sup> 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.





# 4

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**Mixed Use and Commercial**

## 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 55,000m<sup>2</sup> 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 m<sup>2</sup> atrium, 18,000 m<sup>2</sup> of U-shaped concourse, 2,000m<sup>2</sup> 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 m<sup>2</sup>.

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 m<sup>2</sup> 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 square meters.

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 m<sup>2</sup>. 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 m<sup>2</sup> Convention Hall, 67,300 m<sup>2</sup> Parking, 24,000 m<sup>2</sup> Exhibition Hall, and 47,700 m<sup>2</sup> 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 m<sup>2</sup>.

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.

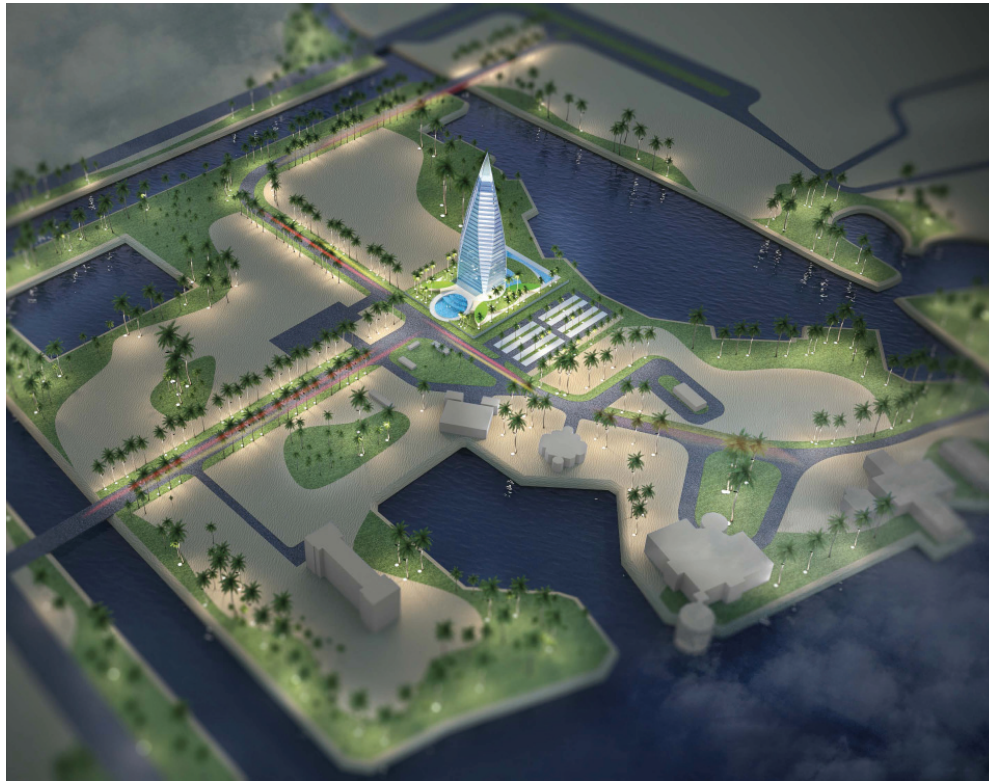
A food court will be incorporated, covering 2 floors and an area of approximately 8,000m<sup>2</sup>, partially indoors and outdoors.

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 m<sup>2</sup> of office space and 2000 m<sup>2</sup> 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

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**Special Projects**





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.



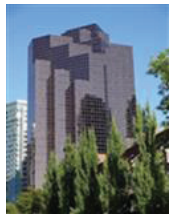


## Oracle

Various Locations, USA

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

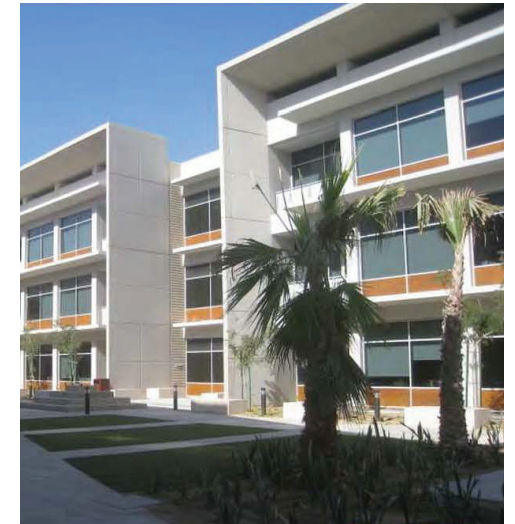
## American School of Dubai

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 m<sup>2</sup>.



## 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 m<sup>2</sup> 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

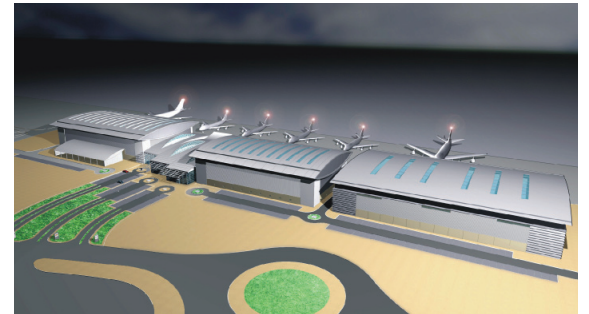


### Executive Terminal & Hangar Buildings

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 roovescape within an airport.



### Royal Flight hangars

Dubai International Airport, UAE  
The Government of Dubai

Responsible for the design of this 16,300 m<sup>2</sup> 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.

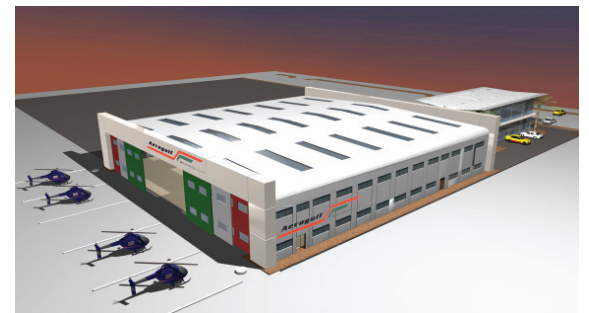


### Aerogulf Hangar Facilities

Dubai, UAE

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

The facility accommodates 1050 m<sup>2</sup> of hangar space with a further 3100 m<sup>2</sup> of workshop and office space.





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**Infrastructure**



## 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 m<sup>2</sup> in a 46,803 m<sup>2</sup> 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



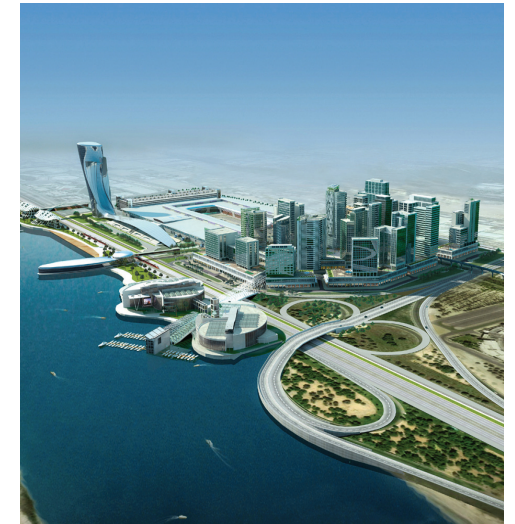
## Abu Dhabi National Exhibition Center (ADNEC) - Phase 4

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 m<sup>2</sup> with an overall GFA of 900,000 m<sup>2</sup>.

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 m<sup>2</sup> 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 has designed multiple district cooling plants in the Middle East. These plants cater for large developments such as the artificial islands built in Dubai.

### Palm Jumeirah Crescent District Cooling Plants

Completed in 2008, provides 120,000 TR of cooling to the sub-developers of the crescent. Total construction value was 450 million Dirhams.

### Jumeirah Village South 1

This district cooling network was designed to serve schools, residential buildings, community halls, commercial and business centers. The total connected cooling load demand of the development is 320,000 TR. The chilled water is generated by 6 District Cooling Plants.

### Jumeirah Village South 2

This plant was designed in two stages for a total of 55,000 TR. The scope included:

- Mechanical and Electrical plant and Systems Design
- Architectural and Structural Design
- Coordination and provision of 11KV systems as per DEWA requirements
- Coordination and interfacing with the District Cooling piping network
- Stress analysis of the condenser and chilled water piping systems
- Controls and Plant automation
- Contract (Technical) documentation

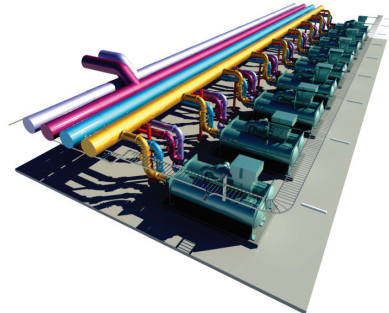
### Deira Islands Mall District Cooling

The planned built up plant capacity will be 50,000 RT with thermal energy storage by means of a stratified chilled water tank with peak instantaneous discharge of 10,000 RT. The plant will incorporate high efficiency centrifugal chillers configured in series-counter flow arrangement, and is being developed on BIM for improved coordination.

### Cooling Plant Consultancy Services for the ADTC Complex

Specialist Engineering services for assessment of solutions for existing Chilled Water Plant (11,200 TR Capacity). The scope included:

- Study of existing Central Plant.
- Review of options and technical proposals.
- Technical Clarifications and Queries to the Vendor to assess the technology.
- Recommendations as to the viability of the solution for implementation at the client's premises.



## District Cooling Plants

UAE, KSA, Qatar

### 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. The scope included:

- Development of a Tariff Model for Chilled Water:
- Review and Rectification of DCP System:
- Transferring to TSE from Potable Water for Cooling Tower Make Up:

### Downtown Jebel Ali 1

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.

The scope of work included:

- Mechanical and Electrical plant and Systems Design
- Architectural and Structural Design
- Coordination and provision of 11KV systems as per DEWA requirements
- Coordination and interfacing with the District Cooling piping network
- Stress analysis of the condenser and chilled water piping systems
- Controls and Plant automation
- Contract (Technical) documentation

### Downtown Jebel Ali 2

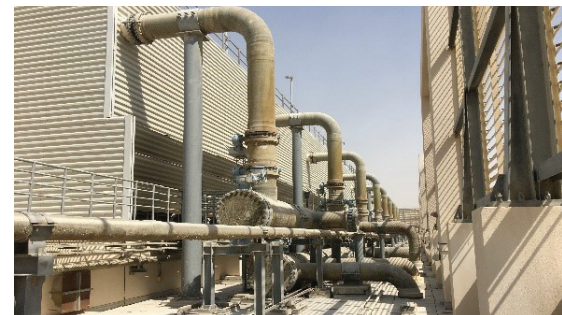
The project included Design of a Modular District Cooling Plant including Chillers, Pumping System, Cooling Towers and modifications to limited reticulation piping. This plant was designed to supply 3000 TR.

### 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. It is to be noted that both plants had undergone a long period of stasis, due to the varying development stages of the Dubai South District.

### 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.





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## DEWA AI Sheraa Building

Dubai, UAE

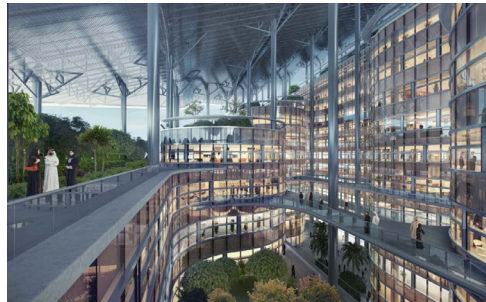
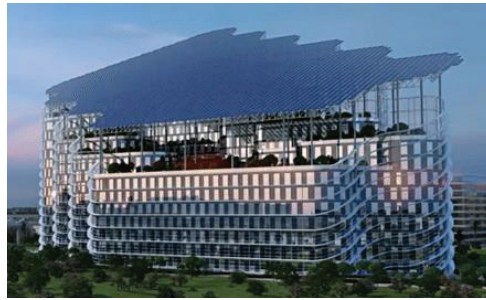
The team at TJEG were appointed by DEWA as Project Innovation and Development Consultant from conceptualizing the project through the end of the Concept Design stage, demonstrating the feasibility of a large scale net zero project in a hot and humid climate.

The new DEWA Headquarters Building, named AI Sheraa Building, will be located in Al Jadaf, Dubai. The building will have a built-up area of over 1.5 million square feet.

The building is designed to accommodate 5,000 employees and will have over 16,500 square meters of photovoltaic solar panels producing over 3,500 kilowatt hours and an Energy Utilization Intensity (EUI) of 70 kWh/m<sup>2</sup> per year.

The AI Sheraa Building is aiming to be a Zero Energy Building (ZEB), and targeting to achieve LEED Platinum and WELL Silver certifications. It will have a state of the art building management and control center. The system will allow necessary systems to function and shutdown systems that are not required to run at any given time. These systems include air conditioning and lighting, among others.

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 in Saudi Arabia and the Middle East.

The team at TJEG was commissioned by the main contractor to carry-out net zero verification, energy modelling, and take the project to LEED Platinum certification.

The Demonstration Home showcases a full complement of the latest commercially available technologies yielding net zero energy use, water conservation and environmentally responsible building materials and techniques to light the path for sustainable home building around the globe.

Key Sustainable Features of the Home of Innovation, Demonstration Home Project include:

- 28.8kWp PV Array to support net-zero energy consumption
- Conditioning, water heating and other energy using systems is controlled by a computer-based BMS
- Two high-efficiency central heat pump systems are augmented by a VRF system with seven mini-splits serving multiple zones throughout the home
- Insulated Concrete Form (ICF) exterior walls and roof and a thermally massive structure to resist outdoor temperature swings
- High performance insulated windows
- Air infiltration is reduced significantly and controlled at a low 1.6 air changes per hour (ACH), providing plenty of clean fresh air
- High-efficiency bath exhaust fans
- A home energy recovery ventilator (ERV)



## Kandalama Hotel

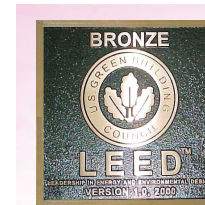
Dambulla, Sri Lanka

The Kandalama Hotel was to be constructed in Sri Lanka's historic cultural triangle's heartland, flanked by two world heritage sites, an area of tremendous cultural and historical importance.

This 253,000-sq.-ft. hotel was built on stilts to maintain the natural rainwater flow, landscaping was restored up to the column footings, and 80 percent of the roofs are planted with indigenous horticulture. The building was planned around the backdrop of a rock formation to provide a degree of passive cooling, which reduced the overall cooling load, a major factor in meeting the ASHRAE 90.1 - 1989 energy goal.

All water is recycled and re-used. Water which comes from deep wells on the site is treated, and then circulated to the building. Effluent passes through two treatment plants and then used for landscaping. Surplus water is 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 a LEED (Leadership in Energy and Environmental Design) Silver Rating for its District Cooling Chiller Plant ONE (DCCP ONE) building on 7th June, 2006.

As Engineers, Project Managers and LEED Consultants for DCCP ONE, the engineers at TJEG appealed this award in August 2006 to successfully defend 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 LEED-NC v2.1 rating system attributes 25% of the credits to Energy, 22% to Indoor Environmental Quality and the remaining to Water Conservation, Sustainable Site and application of Renewable Materials. As far as Energy and IEQ are concerned, the LEED standard is based on ASHRAE 90.1 and 62 respectively. The DCCP ONE's energy rating surpasses the ASHRAE 90.1 Std. energy benchmark by more than 30%. The project also achieved the Enhanced Commissioning credit.

The Project used low VOC materials, Waterless urinals, light pollution reduction techniques, high efficiency Cooling Towers, alternative transportation systems, Waste Management Systems, to name a few among many critical steps to achieve the Gold Award.



## Al Waseel Hills

Riyadh, KSA

Al Waseel Hills is a 685-unit employee housing project located at the Shams Al-Riyadh site, where 615 villas are LEED for Homes certified as single-family detached housing units. Phase 1 of the Project includes mosques, schools, shopping centers, sports and recreation clubs and parking areas.

The client's objective was to impact on productivity and innovation for the company to help achieve its vision at the local, regional and global levels.

On 7th November 2017, the 615 residential units were awarded with LEED Silver certification from the U.S. Green Building Council.

A unique feature of the project site is the infrastructure and communal landscaping along with the restoration of the Wadi Hanifa, which passes through the complex.





## ADNOC Headquarters

Abu Dhabi, UAE

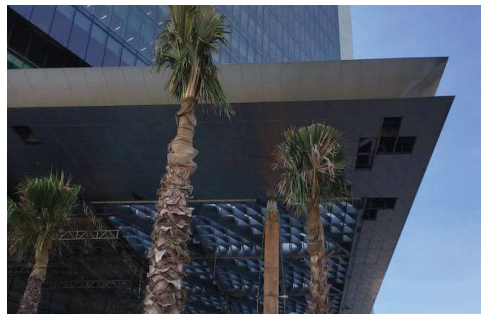
ADNOC's New Headquarters is a high-rise office complex housing the Abu Dhabi National Oil Company. It is located on one of Abu Dhabi's most prominent urban sites. The building incorporates energy efficiency and sustainable engineering such as a double skin façade, photovoltaic glazing, LED lighting, high efficiency air-conditioning 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 is comprised of an underground parking, podium, an atrium and office tower of 75 floors. The total built up area of the complex is approximately 168,000 square meters. The typical floor layout zones the offices to the north side of the building taking advantage of site views to the Corniche and quality of daylight. Most public functions such as conference rooms, reception and restrooms are zoned towards the south facing façade which features a double glazed exterior skin that protects the building occupants from harsh solar exposure and allows a more filtered daylight infiltration. A universal grid module was developed that integrates movable wall, ceiling panel, lighting and HVAC systems.

ADNOC has taken a further step in their commitment to sustainability by initiating a program aimed to excel in environmental excellence through building operations and maintenance best practices. To assist ADNOC in making this possible, ADNOC and EJADAH engaged the services of Green Technologies, now part of TJEG, to take the project to successful LEED certification under LEED 2009 for Existing Building Operations & Maintenance rating system.

The team at TJEG undertook LEED assessment, water and energy audits, identified LEED strategies for implementation by the ADNOC team, assisted the team in developing documentation and provided leadership in pursuing LEED certification ensuring that the requirements for achieving LEED Gold under the LEED 2009 for Existing Buildings: Operation and Maintenance rating system were complied with.

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.







## Ted Jacob

PE

### Introduction

Ted has extensive experience in the design of healthcare and laboratory facilities. His experience includes all aspects of design and construction, construction management and construction administration.

### Education

- BS Mechanical Engineering, California Polytechnic State University, San Luis Obispo, California, USA

### Registration

- Registered Mechanical Engineer in the State of California and Illinois
- ASHRAE Certified Healthcare Facilities Design Professional

### Affiliations

- ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
- ASPE - American Society of Plumbing Engineers
- CSHE - California Society of Healthcare Engineers

### Speaking Conferences

- Panel Chair of "Future Trends in Healthcare" at the "Leaders in Design MENA Summit 2015" Dubai, UAE
- Arab Healthcare Conference 2008-2010, Dubai, UAE
- Cityscape sustainable Development, May 2008 Abu Dhabi, UAE
- Hospital Build & Design Upgrade 2009 2010 & 2012 Dubai, UAE
- Hospital Build Asia conference 2009-2012, Singapore
- Hospital Build China conference 2011-2012, Beijing, Hong Kong
- MEED Healthcare Conference 2008 and 2009, Dubai, UAE
- WCDH 2012, Kuala Lumpur, Malaysia

### Awards

- Cleveland Clinic Abu Dhabi - First Place Award for Best Sustainable Project 2015
- DEWA Solar Innovation Center - Six First Place Awards for Best Sustainable Design as of 2017
- Mills Peninsula Hospital won two First Place ASHRAE Awards 2013 & Region X 2013 Technology Awards for New Healthcare Facilities.
- University of California San Francisco First Place ASHRAE Awards for 2007 for Institutional Buildings.

**As founder and president of Ted Jacob Engineering Group, he has managed to expand the US based firm to be one of the most renowned engineering companies in the world. Ted has completed projects from concept design through construction for healthcare facilities, research, advanced technologies, commercial, and residential projects. He has been a keynote speaker in many healthcare conferences throughout the world.**

**Ted's influence in Green Sustainable Design has rewarded him with multiple prestigious awards for occupant comfort, indoor air quality and energy conservation.**

### Experience

- Cleveland Clinic Abu Dhabi Hospital with 364-bed, 4.8Msf including Patient Tower, Swing Wing and ICU Tower, Abu Dhabi, UAE.
- Kaiser Los Angeles Medical Center: Hospital Replacement, 448-bed, 900,000sf, \$240M construction cost, Los Angeles, CA.
- Kaiser Oakland Hospital Replacement, 349-beds, 1,120,000sf total of Hospital, Central Utility Plant, two Medical Office Buildings and two parking garages. \$950M construction cost, Oakland, CA
- Kaiser Fontana Hospital Replacement - 314-beds, 500,000sf Hospital, 33,100sf - Central Utility Plant (CUP), and 55,700sf Support Building, Fontana, CA.
- California Pacific Medical Center Van Ness Campus - Women's, Children's and Acute Care Center, 343-beds, 1.0 million sf, \$1.2 billion construction cost, San Francisco, CA.
- Mills-Peninsula Hospital Replacement, 311-Patient beds, 460,000sf Hospital and 180,000sf Professional Office Building (POB), \$672M construction cost, Burlingame, CA. The mechanical design won two First Place ASHRAE Awards for 2013 Technology Award and Region X 2012-2013 Technology Award for New Healthcare Facilities.
- Children's Hospital Los Angeles: Hospital Replacement, New 278-bed Patient Tower, 425,000sf, \$212M construction cost, Los Angeles, CA.
- Lodi Memorial Hospital, 4-story South Wing Hospital Addition of 130,000sf, and 14,500sf Central Utility Plant, 15,000sf cafeteria & food service, \$75M construction, Lodi, CA.
- Children's Hospital Oakland 2012 Master Planning including Inpatient Remodeling Phase 1 - 100,000sf and Patient Pavilion Building Phase 2 - 145,000sf, Oakland, CA.
- UC Davis Medical Center - Tower II building consists of 105-patient bed, 464,000sf, and \$120M construction cost, Sacramento, CA. The mechanical design won First Place ASHRAE 2003 Technology Award for New Health Care Facilities.
- UCSF Health Sciences East Building (HSE) Improvements Phase I, San Francisco, CA. The mechanical design won First Place in the 2004 ASHRAE Technology Awards for Institutional Buildings.
- Al Amal Psychiatric Hospital is a 250-Bed, 1.2Msf of adults and adolescent psychiatric and/or drug and alcohol rehabilitation in both inpatient and outpatient, secure and non-secure settings complex, \$750M construction cost, Dubai, UAE.



Cleveland Clinic, Abu Dhabi



Kaiser Oakland Medical Center, California, USA





## Hyung Ryu

PE, CIPE

### Introduction

Hyung Ryu has extensive experience in all phases of plumbing and fire protection engineering from design through construction supervision. The projects have included plumbing systems, fire protection systems, process piping and medical and laboratory gas systems.

### Education

- BS Mechanical Engineering - Iowa State University, Ames, Iowa, USA

### Registration

- Registered Mechanical Engineer in the State of California
- Certified Plumbing Engineer by ASPE
- Certified Commercial Energy Inspector in the City of San Francisco

### Affiliations

- ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
- ASPE - American Society of Plumbing Engineers
- ASME - American Society of Mechanical Engineer
- NFPA - National Fire Protection Association

### Publications

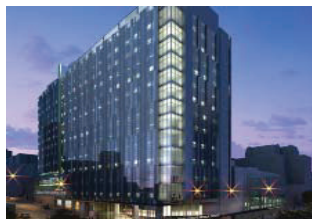
- Hyung's article on Plumbing Systems was published in the ASPE, Special Plumbing System Chapter 18, "Corrosion"
- "Medical Gas System" for ASPE Seminar



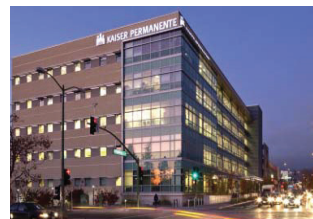
**Hyung has been involved in projects that have included plumbing systems, fire protection systems, process piping and medical and laboratory gas systems. He has over 30 years of experience in this field and has served as the Technical Vice President of the American Society of Plumbing Engineers (ASPE) San Francisco. He is also served on Codes and Standards Review Committee of the National Fire Protection Association (NFPA).**

### Experience

- Cleveland Clinic Abu Dhabi Hospital with 360-490 beds, 2.8 million sf, Abu Dhabi, UAE.
- Al Amal Psychiatric Hospital, 200-Bed, 650,000sf, Dubai
- Danat Al Emrat Women's & Children's Hospital, 200-beds, 750,000sf, Abu Dhabi, UAE
- Iraq General Hospitals - Five Maternity & Women's Hospitals (Babylon, Wasit, Tamim, Salah Al Dein and Karkh); 400-bed, 270,000sf including a multi-specialty - Outpatient Medical Center; a high-technology Diagnostic and Treatment Center. Critical Care Wing, Intermediate Care Wing, a rehabilitation and Medical Inn, and Staff Residences. Ministry of Health, Republic of Iraq
- Kaiser Oakland Hospital Replacement, 349-beds, 1,120,000sf total of Hospital, Central Utility Plant, two Medical Office Buildings and two parking garages. \$950M construction cost, Oakland, CA
- Kaiser Los Angeles Medical Center: Hospital Replacement Stage 1, 448 Beds, 900,000sf, \$240 million construction cost, Los Angeles, CA
- California Pacific Medical Center Van Ness Campus - Women's, Children's and Acute Care Center, 343-beds, 1.0 million sf, \$1.2 billion construction cost, San Francisco, CA.
- Mills-Peninsula Replacement Hospital, 232-bed, 460,000 sf Hospital and 150,000 sf MOB, \$188 million construction cost, Burlingame, CA.
- Kaiser Vallejo Medical Center - 2008 Tower, 188-bed, 491,000 sf, \$190 million construction cost, Vallejo, CA.
- Children's Hospital Los Angeles - Hospital Replacement project, New 278-bed Patient Tower, 425,000 sf, \$212 million construction cost, Los Angeles, CA.
- Lodi Memorial Hospital - Central Plant and South Addition. Acute care hospital addition of 147,000 sf and new central plant to serve the entire campus. Lodi, CA.
- San Mateo County Health Center - Hospital Expansion, 200-bed, 394,000 sf, \$110 million construction cost, San Mateo, CA.
- UC Davis Medical Center - Tower II, 464,000 sf, \$120 million construction cost, Sacramento, CA. The mechanical design won First Place ASHRAE 2003 Technology Award for New Health Care Facilities.
- UCSF Health Sciences East Building (HSE) improvements Phase I, San Francisco, CA. The mechanical design won First Place in the 2004 ASHRAE Technology Awards for Institutional Buildings.



California Pacific Medical Center



Kaiser Oakland Hospital Replacement



## Mark Redmond

PE, CEM, GBE

### Introduction

Mark has over 30 years of experience, with a focus on health care, in all phases of mechanical engineering from design through construction supervision.

### Education

- BS Mechanical & Environmental Engineering, California Polytechnic State University, San Luis Obispo, California, USA

### Registration

- Registered Mechanical Engineer in the State of California, Hawaii, Colorado, Arizona, Washington, Illinois, Texas and Michigan
- Certified Energy Manager and Green Building Engineer

### Affiliations

- ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers

### Awards

- Kaiser Oakland Medical Center ASHRAE 2016 Technology Award, Second Place
- Kaiser Oakland Medical Center ENR Award Best Healthcare Project 2014
- Children's Hospital Los Angeles 2011 Award of Excellence for Architectural and Engineering Design
- Four First Place ASHRAE Technology Award for Engineering Design for Institutional Buildings



**Mark's projects have included HVAC systems, building commissioning and trouble-shooting, master planning, central plants and life cycle analysis of systems. He is a registered professional engineer in eight states, a Certified Energy Manager and a Certified Green Building Engineer.**

### Experience

- Yukon-Kuskokwim Health Corporation - 85,000sf hospital remodel and a new 175,000sf building including I-Occupancy hospital space and B-Occupancy clinic space as well as a new central utility plant, Bethel, Alaska
- Kaiser Oakland Hospital Replacement, 349-beds, 1,120,000sf total of Hospital, Central Utility Plant, two Medical Office Buildings and two parking garages. \$950M construction cost, Oakland, CA
- Children's Hospital Los Angeles: 278-bed Patient Tower, 425,000sf including 3,000-ton chiller expansion to the existing plant, \$212M construction cost. The project received 2011 Award of Excellence honoring outstanding architecture and design from the Los Angeles Business Council.
- San Diego Children's Hospital - Master Plan and Cogeneration Analysis, San Diego, CA
- Oracle Corporation - More than 150 projects across the United States including high tech office space and data centers.
- Google - Numerous projects across the world including office space and lab facilities
- The Queen's Medical Center, Master Plan, Honolulu, Hawaii.
- Kaiser Medical Office Building Walnut Creek, CA
- Washington Hospital - 188,000sf Medical Office Building 38,000sf, ICU/CCU and Patient Bed Building Addition, New 10,000sf Central Plant and Hospital Remodel, Fremont, CA.
- Kaiser Walnut Creek Medical Center - Data Center Expansion; Addition of 10,000sf, Walnut Creek, CA.
- Kaiser Oakland Hospital Replacement - Master Planning, Oakland, CA.
- Kaiser Oakland Medical Center - Chiller and Boiler Replacement, Oakland, CA.
- Kaiser Oakland Medical Center - Eye Clinic Renovation, extension of primary Chilled and Hot Water System, Oakland, CA.
- Summit Medical Center - \$30 million numerous misc. projects such as emergency expansion, ORs, Dialysis etc. Also included seismic upgrade to meet SB 1953.
- UC Davis Medical Center - Energy Efficiency Upgrades, Sacramento, CA.
- Mt. Diablo Medical Center - Cooling Tower Replacement, Boiler NOX Retrofit, Chilled Water System Analysis and Retrofit, Concord, CA.
- UCSF Health Sciences West Building (HSW) Improvements Phase I, San Francisco, CA. The mechanical design won First Place in the 2007 ASHRAE Technology Awards for Institutional Buildings.
- UCSF Health Sciences East Building (HSE) Improvements Phase I, San Francisco, CA. The mechanical design won First Place in the 2004 ASHRAE Technology Awards for Institutional Buildings.
- UCSF Health Sciences Instruction and Research (HSIR) Building HVAC Master Plan, San Francisco, CA
- Environmental Protection Agency Region IX Laboratory - 50,000sf Laboratory building retrofit, Emeryville, CA



Kaiser Permanente Oakland



Children's Hospital Los Angeles





## Siddhartha Ghosh

PE

### Introduction

Siddhartha Ghosh has over 35 years of experience in project management, analysis, design and construction support for projects such as hospitals, hospital support buildings, laboratories, data centers and medical office buildings.

### Education

- MS Chemical Engineering, University of California Los Angeles, California, USA
- MBA – University of New Mexico, Albuquerque, New Mexico, USA

### Registration

- Registered Mechanical Engineer in the State of California, USA

### Affiliation

- ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers
- Certified LEED Accredited Professional Building Design + Construction by the US Green Building Council



**Siddhartha has performed energy studies, evaluation of HVAC systems, life cycle analysis and construction trouble-shooting. He has managed design and construction administration of major medical projects involving new construction and remodel of existing hospitals.**

### Experience

- Kaiser Fontana Hospital Replacement – 490,000sf 314 -bed, with 60,000sf HSB, and 35,000sf, Major expansion of Data Center; Fontana, CA
- Kaiser West Los Angeles – New Tower & Central Plant Expansion; New 180,000sf Acute Care tower with a Central Plant expansion; \$130 million construction cost; Los Angeles, CA
- Kaiser Fontana Medical Center - Central Plant, \$435 million construction cost, Fontana, CA.
- Kaiser Los Angeles Medical Center – Stage 1 and 2 replacement hospitals 802,000sf, 400 bed replacement hospital with 103,000sf new Central Utility Plant; Los Angeles, CA
- Loma Linda Medical Center Steam Plant Upgrade - Seismic upgrade of the existing Central Steam Plant and major upgrade of high pressure steam system with addition of new boilers and associated equipment. Estimated construction cost \$100 million. Loma Linda, CA
- Los Angeles County Coroner's Facility MEP retrofit & new crypt – Replacement and expansion of MEP infrastructure for Circa 1960 facility, \$21 million construction cost, Los Angeles, CA
- Johnson and Johnson Product Research Laboratory – Upgrade of laboratory exhaust fans. Project received Energy Excellence Award recognizing significant reduction in energy use and greenhouse emissions; , San Diego, CA
- University of California San Diego – Engineering Lab remodel for energy conservation; San Diego, CA
- Kaiser Woodland Hills Medical Center – Major upgrade to the existing Central Utility Plant Chilled Water System and Steam Boilers, 44-bed Medical Surgical remodel, expansion of Inpatient Pharmacy and replacement of several Medical Center Air Handling Units, new Call Center and various Imaging Rooms; Woodland Hills, CA
- Kaiser Riverside Medical Center – 21,000sf expansion of Inpatient Pharmacy and Clinical Laboratory and 23-bed Medical Surgical remodel; Riverside, CA
- Santa Monica UCLA Medical Center – Replacement of air handling unit; Santa Monica, CA
- Montgomery Watson Harza Water Test Laboratory – New wet chemistry laboratory facilities, 38,000sf, \$5.6 million tenant improvement project; Monrovia, CA
- Huntington Memorial Hospital – Blood Donor Center, Mental Health Inpatient Facilities; Pasadena, CA
- Pomona Valley Medical Center – Central Plant Remodel, New Cogeneration System; Pomona, CA
- Henry Mayo Memorial Hospital – Central Plan Remodel, New Cogeneration System, replacement of heating water boiler, domestic hot water heaters and medical vacuum pumps; Newhall, CA
- UCLA Center of Health Sciences – Remodel of Radiology Department, Clinical Laboratories and Pharmacy; Los Angeles CA
- UCLA Medical Plaza – Building telecom room cooling upgrade; Los Angeles, CA



Kaiser Los Angeles Medical Center



Kaiser Fontana Medical Center



## Shulamit Rabinovich

PE

### Introduction

Shulamit Rabinovich has over thirty years of experience in the design of mechanical systems and campus infrastructure for large healthcare facilities including hospitals, medical office buildings, clinics and central plants.

### Education

- MS Mechanical Engineering - State Technological Institute, Odessa, USSR

### Registration

- Registered Mechanical Engineer in the States of California and Nevada

### Affiliations

- BSB/OSHPD - California Building Safety Board (BSB) overseeing the Office of Statewide Health Planning and Development (OSHPD)
- BSB/OSHPD - BSB Mechanical/Electrical Committee

### Awards

- First Place ASHRAE 2003 Technology Award mechanical design for new Healthcare Facilities (UC Davis Medical Center)
- First Place ASHRAE 2013 Technology Award, Golden Gate Chapter (Mills Peninsula Hospital)
- First Place ASHRAE Region X 2012-2013 Technology Award Mechanical Design for New healthcare Facilities (Mills Peninsula Hospital)
- HPAC Magazine, 2013 HPAC Engineering Design Awards Winner



**Shulamit Rabinovich has designed and managed through construction some of the largest hospitals throughout the world. Her expertise in this field has earned her an international recognition for the design of sustainable healthcare facilities.**

**As a leader in her field, she has published articles and has earned several awards in recognition of her efforts to improve indoor air quality, save energy and develop technological innovations. As a member of the Building Safety Board overseeing California Office of State Health Planning and Development (OSHPD), she has served on the Mechanical/Electrical Committee.**

### Experience

- California Pacific Medical Center Van Ness Campus - Women's, Children's and Acute Care Center, 343-beds, 1.0 million sf, \$1.2 billion construction cost, San Francisco, CA.
- Kaiser Los Angeles Medical Center, Stage 1: 448-beds, 900,000sf Hospital and Central Utility Plant, \$240 million construction cost, Los Angeles, CA
- Kaiser Vallejo Medical Center 2008 Tower, 188-bed, 450,000sf Hospital including Central Utility Plant, \$275 million construction cost, Vallejo, CA.
- Mills-Peninsula Hospital Replacement, 311-beds, 460,000sf Hospital and Central Utility Plant, 180,000sf Professional Office Building, \$672 million construction cost, Burlingame, CA.
- UC Davis Medical Center - Tower II, 105-patient bed, 464,000sf, \$120 million construction cost, Sacramento, CA.
- Al Amal Psychiatric Hospital, 250-bed, 1.2 million sf, \$750 million construction cost, Dubai, UAE.
- Ventura County Superior Court & Juvenile Justice Complex, six (6) courtrooms, 420-beds, 205,000 sf, \$150 million construction cost, Oxnard, CA
- Santa Clara County Juvenile Justice Complex, 210 detention and commitment beds, 18 Classrooms, 70,000 sf., \$50 million construction cost, San Jose, CA
- Coalinga State Hospital, 1500-bed adult correctional and mental health facility, 1,300,000sf, \$305 million construction cost, Coalinga, CA.
- Veterans Administration Northern California System - Martinez skilled nursing facility, 120-beds, 68,000sf, \$12 million construction cost, Martinez, CA.
- Kaiser Fremont Medical Center - 200-bed, 202,000sf Hospital, \$50 million construction cost, Central Plant And General Services Building, Fremont, CA.
- MacNeal Memorial Hospital - 220-bed, 300,000sf Hospital and Central Utility Plant, \$80 million construction cost, Berwyn, IL.



Kaiser Los Angeles Medical Center



California Pacific Medical Center, San Francisco, CA





## Mario Seneviratne

### Introduction

Professional Engineer with extensive corporate background, owning and operating consultancy practice including representing Clients on large-scale engineering projects.

### Education

- MSc in Engineering - University of Alabama, Birmingham, USA
- BSc Engineering - Summa Cum Laude - University of Alabama, Birmingham, USA.
- Program Participant - Harvard School of Public Health Executive and Continuing Professional Education Sustainability Program - 2014

### Registration

- P.Eng. - Association of Professional Engineers and Geoscientists of British Columbia, Canada
- P.Eng. - Association of Professional Engineers, Geologists and Geophysicists of Alberta, Canada
- LEED AP BD+C - USGBC
- LEED Faculty Member - USGBC
- Chartered Engineer - The Engineering Council, UK
- Européen Engineer - Federation Européenne D'Associations Nationales D'Ingenieurs, UK

### Affiliations

- Fellow - Institute of Mechanical Engineers, UK
- Fellow - LEED USGBC
- Life Member - American Society of Heating, Refrigeration and Air Conditioning Engineers, USA
- Member - Institute of Electrical and Electronics Engineers Inc., USA
- Member Tau Beta Pi - The Engineering Honor Society, USA
- Board Member - Advisory Board Department of Civil Engineering, American University in Dubai
- Society of Engineers UAE



**Founder and Principal of Green Technologies FZCO, M&E Specialist Consultancy company specializing in the Design, Construction and Maintenance of Energy and Net Zero Developments. Green Technologies FZCO merged with Ted Jacob Engineering Group in 2018.**

### Experience

- Sustainability Consultant - Kandalama Hotel, Sri Lanka - The First LEED Green Building outside the USA and the First LEED Green Hotel in the World; 2000
- Engineer of Record - Wafi City District Cooling Chiller Plant DCCP One, Dubai, UAE - LEED Gold: 2006 - The First LEED Building in the Middle East
- Sustainability Consultant - SABIC Demonstration Home, Riyadh, KSA - Net Zero and LEED Platinum: 2015 - The First Net Zero and LEED Platinum-certified Home in the Middle East
- Sustainability Consultant - DEWA Burj Khalifa 132/11 kV Substation - LEED Gold: 2017 - The First LEED-certified Power Substation in the Middle East
- Sustainability Consultant - ADNOC Headquarters, Abu Dhabi, UAE - LEED Platinum: 2018 - The Largest LEED Platinum for Existing Buildings project in the Middle East
- Innovation and Project Development - DEWA Al Sheraa Building, Dubai, UAE - Pursuing Zero Energy Building and LEED Platinum
- Engineer of Record - Dubai World Trade Centre - Sheikh Rashid Tower Central Chilled Water Plant Upgrade, Dubai, UAE: 2014
- Engineer of Record - Grand Hyatt Dubai - Chilled Water Plant Assessment and Retrofit: 2017
- Engineer of Record - ETS Rectification for Barwa City and Barwa Commercial Avenue, Doha, Qatar: 2015
- Engineer of Record - H.H Sheikh Suroor Projects Department - Cooling Plant Consultancy Services for Abu Dhabi Trade Center Abu Dhabi Mall Complex - 2016
- Dubai International Airport, UAE - 1990-2001 - Specialist Engineers and Project Managers
- Engineer of Record - Chilled Water Supply Systems for Executive Jet Terminal and Four Hangars, Dubai South, UAE
- Sustainability Consultant - The Emirates Flight Training Organisation (EK-FTO) Land and Airside Facilities, Dubai, UAE - Energy and Water Conservation Measures - 2015
- Sustainability Consultant - ADNOC Temporary Guest House, Ruwais, Abu Dhabi - LEED Volume Project - LEED Gold: 2016
- Engineer of Record - Chilled Water Plant Retrofit of Hyatt Regency and Galleria, Dubai, UAE
- Engineer of Record - Food Processing & Logistic Center for Farm Fresh, DIP, Dubai, UAE - 2012; Specialist Engineers and Project Managers
- Engineer of Record - Industrial Cooling for DNATA Freight Logistics Warehouses at DAFZ - Specialist Engineers
- Engineer of Record - Chilled Water District Cooling Plant(s) Commissioning RC1, LC2 and Network CPI, CP2, CP3, cumulative tonnage in excess of 100,000 TR. Dubai South



Kandalama Hotel, Dambulla, Sri Lanka



Dubai South District Cooling, Dubai,



## Shant Der-Torossian

PE, MSEE

### Introduction

Shant Der-Torossian is an accomplished and successful Electrical Engineer with more than 10 years of experience with focus on healthcare facilities.

### Education

- MS Electrical Engineering (MSEE) University of Southern California, Los Angeles, California, USA
- BS Electrical Engineering (BSEE) Lebanese American University, Byblos, Lebanon

### Registration

- Registered Electrical Engineer in the State of California (E-19892)

### Affiliations

- Certified LEED Green Associate
- Institute of Electrical and Electronics Engineers (IEEE)



**Shant's experience in the design of electrical distribution systems, emergency power systems, lighting, signal and communications systems has contributed to the successful delivery of high-quality projects. He has extensive experience in all phases of electrical engineering from design through construction supervision. He is a registered professional engineer in the State of California and has earned a Master's degree in Electrical Engineering.**

### Experience

- Yukon - Kuskokwim Health Corporation - 85,000sf hospital remodel and a new 175,000sf building including I-Occupancy hospital space and B-Occupancy clinic space as well as a new central utility plant, Bethel, Alaska
- Kaiser Fontana Hospital Replacement - 314-bed, 490,000sf., with 60,000sf. Hospital Support Building, Fontana, CA
- Kaiser Los Angeles Medical Center - Hospital Replacement project, 448-bed, 900,000 sf, \$240 million construction cost, Los Angeles, CA.
- Los Angeles County Coroner's Facility - MEP retrofit - Replacement and expansion of MEP infrastructure, \$21 million construction cost, Los Angeles, CA
- Kaiser Fontana Medical Center Central Plant Building - 50,000sf., Fontana, CA
- Kaiser Fontana Medical Center - Site Electrical Service Upgrade, Fontana, CA
- Kaiser Fontana Medical Center - TER Retrofit & Upgrade, Fontana, CA
- Johnson & Johnson Pharmaceutical Laboratory energy retrofit project - The project received EHS&S Energy Excellence award recognizing outstanding practices in the reduction of energy use and greenhouse gas emissions. La Jolla, CA
- Kaiser Woodland Hills Medical Center - Long Term IT Infrastructure upgrade Assessment. Los Angeles, CA.
- UCLA Outpatient Imaging Center - Convert existing office space into a new OSHPD III medical imaging clinic. Los Angeles, CA
- Kaiser Los Angeles Medical Center - Multiple Surgical Suites and Imaging rooms upgrade projects. Los Angeles, CA.
- UCLA Medical Center Campus Lighting Retrofit Project. Los Angeles, CA.
- Kaiser Los Angeles Medical Center - Medical Office Building and Parking Structure - Replacement of diesel generator sets. Los Angeles, CA.
- Kaiser Los Angeles Medical Center - Central Plant Chiller conversion project. Los Angeles, CA.
- UCSD - Engineering Building Unit 2 Energy Efficiency Retrofit. San Diego, CA.
- Dubai World Central Infrastructure, United Arab Emirates. Design packages include: 132/11kV Electrical Substations, District Cooling Plants, Pumping Stations, Infrastructure Projects for Residential/Industrial Areas
- Kurdistan Gate: two 19-story towers - 900,000 sf. One of the towers is an office building while the other accommodates furnished apartments and a 4-star hotel with a capacity of 150 guest rooms. Kurdistan, Iraq.



Kaiser Los Angeles Medical Center



Kaiser Fontana Medical Center





## Leopoldo Marzan

### Introduction

Pol has over 30 years of experience in the design of healthcare facilities including hospitals, laboratories, medical office buildings, clinics, central utility plant and master plan.

### Education

- BS Mechanical Engineer - National University, Philippines

### Affiliations

- Certified LEED Accredited Professional Building Design + Construction by the US Green Building Council



**Pol has successfully completed over 300 healthcare projects which require OSHPD permits and has established outstanding relationships with OSHPD and the State Fire Marshal. He has thorough experience in all aspects of design in HVAC mechanical systems including 100% outside air system with heat recovery, primary/ secondary chilled water systems, high and low pressure steam, and central utility plant and master plan design.**

### Experience

- California Pacific Medical Center Cathedral Hill Campus- Women's, Children's & Acute Care Center, 555-beds, 1.2 million sf, \$800M construction cost, San Francisco, CA.
- Cleveland Clinic Abu Dhabi Hospital with 364-bed, 4.8Msf including Patient Tower, Swing Wing and ICU Tower, Abu Dhabi, UAE.
- Kaiser Los Angeles Medical Center: Hospital Replacement, 448-bed, 900,000sf, \$240M construction cost, Los Angeles, CA.
- Mills-Peninsula Hospital Replacement, 311-Patient beds, 460,000sf Hospital and 180,000sf Professional Office Building (POB), \$672M construction cost, Burlingame, CA. The mechanical design won two First Place ASHRAE Awards for 2013 Technology Award and Region X 2012-2013 Technology Award for New Healthcare Facilities.
- Summit Medical Center - \$30 million in construction costs for numerous misc. Projects such as Analysis of Operating Suite supply and exhaust fans, Pavilion Laminar Flow Rooms, Pre-OP and Post-Op rooms, Urgent Care Remodel, Emergency Department Expansion, Dialysis G.I. Treatment, Ultrasound and Staff Lounge, Neonatal Intensive Care Unit, South Pavilion - Clinical Lab, North wing Seismic Improvements, 2nd Floor Core and CT Scan, Gero Psych Unit, Non-Invasive Cardiology/Therapy Reception and Master Plan, Oakland, CA
- San Mateo County Health Center - Hospital Expansion, \$85 million construction cost, San Mateo, CA.
- Kaiser Oakland Medical Center - Complete Remodeling of the Existing Chilled and Hot Water Systems and Provision of New Central Plant, approximately 1,300 tons of refrigeration and 30,000 MBH of heating, Oakland, CA.
- Community Hospital of Monterey Peninsula - New Central Plant and Maternity Department Remodel, total construction cost \$12.5 million, Monterey, CA.
- Kaiser South Sacramento Medical Center - New Medical Office Buildings, \$19.6 million construction cost, and relocation of Central Plant, South Sacramento, CA.
- Kaiser Stockton Medical Center - 208,000 sf Medical Office Building, Ancillary Services and Central Plant, \$62 million construction cost, Stockton, CA.
- Santa Clara Valley Medical Center - Chiller replacement, Operating rooms AHU upgrade and Central Plant remodel, Santa Clara, CA
- UC Davis Medical Center - Tower II, 464,000 sq. ft., \$120 million construction cost, Sacramento, CA. The mechanical design won First Place ASHRAE 2003 Technology Award for New Health Care Facilities.
- Al Amal Psychiatric Hospital is a 250-bed, 1.2 million square feet, \$750M construction cost, Dubai, UAE.



Kaiser Los Angeles Medical Center



California Pacific Medical Center, San Francisco, CA



## Qamar Nizami

### Introduction

Qamar has a progressive range of experience in estimation, design detailing and execution of MEP projects in the Middle East and India. Projects experience in the Gulf include execution of some landmark and fast-track projects in the region, such as the Bahrain City Center in Manama.

### Education

- BS Engineering
- MBA - Master of Business Administration

### Registration

- Holder of Dubai Municipality License for Building Mechanical Engineering Services
- Trakhees accredited Mechanical Engineer

### Affiliation

- Society of Engineers UAE



**Qamar's responsibilities include design of sustainable and practicable mechanical systems and his ability to implement effective design strategies with a blend of cost consciousness and adaptability. Qamar is responsible for ensuring that TJEG's design and Post Contract services meet the needs of our clients and that all our departments are fully coordinated.**

**Qamar's core competencies include design and site supervision of Building Services Projects and District Cooling Plants. He has participated in the design of numerous industrial facilities, and has deep knowledge of international standards such as NFPA.**

### Experience

- Deira Islands Mall, Dubai, United Arab Emirates
- Mayasem Gardens Development, Jeddah, KSA
- Oberoi Sky City in Borivali East, Mumbai, India
- Eterna and Enigma Towers in Mulund Residential Development, Mumbai, India
- Hillside Villas at Jumeirah Golf Estates, Dubai, UAE
- Jumeirah Plots Development, Dubai - Residential and Shopping Center
- Hilton Garden Inn Al Barsha, Dubai, UAE
- Kent College Dubai, UAE
- Ducab Aluminium Rod and Conductor Factory - Factory in KIZAD, Abu Dhabi, UAE
- W Hotel & Residences, Palm Jumeirah, Dubai, UAE
- Capital Center Hotel, Abu Dhabi, UAE
- Emirates Aluminium Smelter Project (Phase II), Abu Dhabi, UAE
- Peer review of ventilation, air-conditioning and Building Management Systems at Bahrain Financial Harbour in Manama, Bahrain
- Oman Convention & Exhibition Center, Muscat, Oman
- District Cooling Plant for Palm District Cooling at Jumeirah Village South, Dubai
- District Cooling Plant for Palm District Cooling at Palm Jumeirah Crescent, Dubai
- Bahrain City Center, Manama
- Commercial Tower for National Oil and Gas Agency (NOGA) in Manama, Bahrain
- Mixed use Lotus Development for ENPAR in Mumbai, India
- Refurbishment of headquarters building of Dubai Chamber of Commerce and Industry (DCO), Dubai



Oberoi Sky City in Borivali East



Deira Islands Mall, Dubai





## Aslam M. Dangra

PE

### Introduction

Aslam has extensive experience of design and construction administration on major projects in the United States, United Arab Emirates and Saudi Arabia.

### Education

- BS Mechanical Engineering - Oklahoma State University, Stillwater, Oklahoma, USA

### Licenses and Registration

- Professional Engineer in the State of Florida
- Licensed Certified General Contractor in the State of Florida
- Certified Fire Safety Inspector in the State of Florida
- Nationally Certified Life Safety Code Specialist (NFPA 101)
- Registered Consultant Engineer with the Saudi Engineers Council



Aslam Dangra is a licensed Professional Engineer in the State of Florida since 1990 and a licensed Certified General Contractor in the State of Florida since 2006. He has significant senior management level experience in project management and planning, fiscal and resource management, marketing and business and proposal development. He has over 30 years of experience in the field of HVAC design, construction administration and project management of various engineering projects related primarily to and heavily concentrated on Healthcare facilities along with Shopping Malls, Housing Facilities, Hotels, Schools, Office Buildings and other types of commercial projects varying in size and locations from \$1M to over \$800M in USA and Middle East regions.

### Experience

- Knowledge Economic City (KEC) Hotel projects in Madinah, KSA
- Dr. Soliman Faqeh Hospital (DSFH) in Jeddah, KSA
- American International School of Jeddah (AISJ), Jeddah, KSA
- King Faisal Specialized Hospital Housing (KFSH) Project, Jeddah, KSA
- Majid Al-Futtaim (MAF) Mall, Riyadh, KSA
- Makkah Governmental Complex (MGC) Project, Makkah, KSA
- Mount Sinai Medical Center, Miami, Florida, USA
- Baptist Hospital of Miami, Miami, Florida, USA
- Handall Medical Building, Boca Raton, Florida, USA
- Venra Professional Diagnostic & Cancer Center, W.P.B., Florida, USA
- Baptist Health South Florida - Homestead Hospital, Homestead, Florida, USA
- Westside Regional Medical Center, Plantation, Florida, USA
- Memorial Hospital Pembroke, Hollywood, Florida, USA
- Memorial Hospital South, Hollywood, Florida, USA
- Okyanos Heart Institute, Freeport, Bahamas
- American International Medical Complex, Abu Dhabi, UAE
- G+6 Residential Building, Dubai, UAE
- G+4 Residential Building, Dubai, UAE
- National Reference Laboratory, Dubai, UAE
- Ministry of Interior - Theater Building, Abu Dhabi, UAE
- Good Samaritan Medical Center, West Palm Beach, Florida, USA
- Jackson Memorial Hospital, Miami, Florida, USA
- International Medical Center (IMC), Jeddah, KSA



Miami Children's Hospital



Baptist Hospital of Miami



## Jayakrishnan Pillai

### Introduction

Jayakrishnan is a qualified engineer with extensive experience in the UAE and India, having over 23 years of experience in electromechanical engineering (Design, Execution and Project management).

### Education

- BS Electronics Engineering
- PG Diploma in Computer Application

### Registration

- Dubai Municipality Certified Consultant Engineer
- Trakhees accredited Electrical Engineer

### Affiliation

- Society of Engineers UAE
- Institution of Engineers India



Jayakrishnan is an experienced Electrical engineer who has been involved in the design of iconic projects in UAE, Oman, Saudi Arabia, Sudan and India.

As head of electrical engineering, he has successfully led several large projects including the Hyatt Regency Dubai Creek Heights in Dubai Health Care City, the LEED Gold certified Hilton Garden Inn in Al Barsha, Dubai, the Hilton Double Tree in Riyadh, KSA and the Mayasem Gardens Residential Development in Jeddah, KSA. His work involves management of other disciplines and sub consultants as well as being the point of contact for clients.

### Experience

- Deira Islands Mall, Dubai, UAE - 970,000 m<sup>2</sup> shopping center
- Nshama Town Square Development, Dubai, UAE
- Damac Carson, Dubai, UAE - 1.6 million m<sup>2</sup> Residential Development
- Damac Vera Hotel Apartments - 26 level tower
- Mayasem Gardens Mixed Use Development, Jeddah, KSA
- Eternia and Enigma Towers in Mulund Residential Development, Mumbai, India
- DEWA Solar Innovation Center, Dubai, UAE
- Hilton Garden Inn Al Barsha, Dubai, UAE
- Mushaireb Development, Sudan - Hotel and Mixed Use
- Hyatt Regency Dubai Creek Heights Hotel in Dubai Health Care City, Dubai, UAE - Five Star Hotel and Apartments
- Hilton Garden Inn & Double Tree for Mawten Hospitality, Riyadh KSA - Four Star Hotel and Serviced Apartments
- Hyatt Capital Gate Hotel (ADNEC), Abu Dhabi, UAE - Five Star Hotel and Mixed Use
- Dubai Tower Jeddah, KSA - Hotel and Residential Towers
- Deerfields Town Square Shopping Center, Abu Dhabi, UAE - Mixed use development including retail, cinemas, food courts and parking
- American School of Dubai, UAE - School that accommodates 1,600 students offering Pre-K to 12th Grade curriculum
- West Wharf at Business Bay, Dubai, UAE - Luxury Residential Tower
- Al Gurg Towers, Dubai, UAE - Mixed Use
- Dubai Internet City Phase 2, Dubai, UAE
- Holiday Inn Hotel Bur Dubai, UAE
- Mega Mall Sharjah, UAE
- Royal Mirage Hotel Dubai, UAE



Deira Islands Mall, Dubai



Eternia & Enigma Towers, Mumbai





## Zuhair Jassim

### Introduction

Structural engineer with 20 years of extensive experience in structural design, supervision and handling of post contract works. Zuhair has been working in UAE for the last 10 years with multi-national engineering consulting firms responsible for complex and large scale developments in UAE and Gulf area. He also has experience working in Libya for 2 years and in Iraq, where he started his career.

### Education

- MS Degree in Structural and Material Engineering, Department of Building and Construction Engineering, University of Technology, Baghdad, Iraq
- BS Degree in Civil Engineering, College of Engineering, Al-Anbar University, Al-Anbar, Iraq

### Licenses and Registration

- Holder of Dubai Municipality License as a Structural Engineer for Unlimited Buildings
- Holder of Sharjah Municipality Licence as a Structural Engineer for Unlimited Buildings
- Member of Iraqi Engineers Union
- Member of Society of Engineers Dubai

Zuhair is an Associate Principal Structural Engineer, being the key point of contact for the structural coordination of design teams. His experience in fast track project delivery and his ability to prioritize and meet deadlines make him an effective design coordinator for major projects.

Zuhair joined Ted Jacob Engineering Group in 2013 after working with renowned engineering firms Aecom and RMJM, leading structural teams for projects in the UAE, Saudi Arabia and Bahrain. His structural experience and team spirit also allow him to support other teams with proposals, pricing, Concept, Schematic, Detailed Design Development and construction.

Holding a Structural Engineering license by different authorities, Zuhair also brings his experience obtaining approvals and performing peer reviews.

### Experience

- DEWA Solar Innovation Center, Dubai, UAE
- Kent College Dubai, UAE - Nursery, Junior and Senior School with a capacity of 2,200 students and 250 staff
- Hilton Garden Inn & Double Tree, Riyadh KSA - Hotel and Serviced Apartments
- Lamar Towers, Jeddah, Saudi Arabia - Mixed use twin towers, 74 and 65 storeys high
- Dubai Tower Jeddah, Saudi Arabia - Mixed use 82 story tower
- West Wharf Tower, Business Bay, Dubai - Residential Tower 2B+G+18
- Noga Tower, Bahrain - Office building, 50 story with Podium Area
- Deerfields Shopping Mall, Abu Dhabi
- Lotus Mixed Use Complex, Mumbai, India - a 25 story office building and a 50 story serviced apartments building connected together



Noga Towers, Bahrain



Deerfields Shopping Mall, Abu Dhabi





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