KEY PERSONNEL CAPABILITIES

Curriculum Vitae

Name :	**Dr. Yehya Timsah**	Date of Birth :	1962
Profession :	Civil Engineer	Nationality :	Lebanese

Present Place of Work : Beirut Arab University

Proposed Position on Team : **Senior Structural Engineer Expert**

Education :

PhD	Soil and Structures Mechanics	Ecole Centrale de Paris	1993
Masters of Science (DEA)	Mechanics of Solids INSTN – CEA	Université Pierre et Marie Curie (Paris 6)	1990
Bachelor of Science	Civil Engineering	Beirut Arab University	1986

Key Qualifications:

In charge of the structural design and structural modeling, in direct connection with the senior architects.

- Review and evaluate all Contract's structural engineering drawings, plans, technical specifications, design calculations, pertinent reports prepared at feasibility and design stage.
- Be responsible for the management and technical direction of the Consultant's personnel related to structural works, as well as of any other staff provided for the purpose of performing the works.
- Manage the collection, analysis, verification, checking, and presentation of all data pertinent to the structural works.

PROFESSIONAL MEMBERSHIPS:

1986-Present: Member, Lebanese Order of Engineers and Architects, Beirut.

1992-1993 : Member, "Groupe d'Etude du Comportement Thermo - Elastique du Béton" - Paris.

1997-2016 : Member, “Commission de Normalisation des Règles Béton Armé libanais" - Beirut.

2003-2010 : Member, "Commission Régionale d’Experts (CRE) " de l’Agence Universitaire de la Francophonie (AUF)- Bureau Moyen-Orient, Beyrouth.

2005-Present : Member, "Commission d’experts a l’O.D. I de Beyrouth" pour ’élaboration des normes sismique.

Languages:

	Reading	Speaking	Writing
English	5	5	5
Arabic	Native Language		
French	5	5	5

(1 to 5 : 1 = Basic; 5 = Fluent)

Educational- Supervision of Training Courses

2016 - Present: Assistant Dean/Professor of Civil Engineering at Beirut Arab University.

1996 Present teaching courses in:

- Strength & properties of materials
- Design of Reinforced Concrete & Prestressed Concrete Structures
- Special Topics in Concrete Structures
- Tall Buildings
- Numerical modeling of Structures
- Water Tanks
- R.C and P.C Bridges
- Earthquake Analysis
- Building Information Modeling (BIM)
- Advanced Numerical Modeling

1997 - 2015: Supervision of training courses of structural engineering software's Staad, SAAP2000, Etabs, SAFES, and ROBOT-Millennium at the Beirut Arab University and the Ordre des Ingénieurs, Beirut Lebanon

1997 - 1998: Supervision of training courses of structural engineering software (ROBOT Millennium) at the Lebanese university –Technology college-, Saida Lebanon

1996 - Present: El-Sharif & BML (official dealers of ROBOT Millennium & ADAPT in Lebanon) as technical support consultant for the program users.

1995 - 1994: With the CEBTP in France, as Research Engineer, developed a computer program for non-linear analysis of 3D structures, by the Finite Element Method (F.E.M.), for the French Ministry of Transportation (SETRA).

1989 - 1990: With the "Institue Nationale de Science et Technique Nucléaire" as Research Engineer, developed a computer software for heat or wave propagation by (F.E.M.) for "Commissariat A l'Energie Atomique (CEA) - Saclay - France.

1987 - 1989: With the BAU in Beirut, as teaching assistant in Topography, Sanitary engineering, and Technical Drawings.

LIST OF PUBLICATIONS

1. Hani Mekdasha, Lina Jaber, Yehya Temsaha, Marwan Sadekb. “Comparative analysis of anchored and pre-stressed pile walls: A case study of a water front project in Beirut, Lebanon”, Materials & Structures, ICCMS-2022

2. Hani Mekdasha, Lina Jaber, Yehya Temsaha, Marwan Sadekb. “Reinforcement of Concrete Shoring Systems by Prestressing” Advances in Civil Engineering. 2022.

3. Yehya Temsah, Ali Jahami, Charles Aouad. “Silos Structural Response to Blast Loading” Engineering Structures, 2021.

4. C. Aouad, W. Chemissany, P. Mazzali, Y. Temsah, A. Jahami. “Beirut Explosion: TNT Equivalence from the Fireball Evolution in the First 170 Milliseconds”. Shock Waves, November 2021.

5. Lina Jaber, Yehya Temsah, Zeinab Zein. Dynamic Soil Structure Interaction Analysis: Modelling the Piles as a Plate Element for a Multistory Building Resting on Deep Foundations”. BAU Jounral- Science and Technology. 2021.

6. Safwan Shahal, Oussama Baalbaki, Yehya Temsah, Hassan Ghanem. “Performance of Two-Way Hinges in Reinforced Concrete Structures” Magazine of Civil Engineering. 2021.

7. Al Rawi Y., Temsah Y., Baalbaki O., Jahami A., Darwiche M., “Experimental investigation on the effect of impact loading on behavior of post- tensioned concrete slabs”, Journal of Building Engineering 31 (2020).

8. Ali Jahami, Yehya Temsah, Oussama Baalbaki, Jamal Khatib. “Strengthening of Post Tensioned Slabs Subjected to Impact Loading”. 74th RILEM week and 40th cement and concrete conference. Sep. 2020.

9. Jahamy A., Temsah Y., Khatib J., Baalbaki O., Darwiche M., Chaaban S., “Impact Behavior of Rehabilitated Post-Tensioned Slabs Previously Damaged by Impact Loading”, Magazine of Civil Engineering. 2020.

10. Jahami A., Temsah Y., Baalbaki O., Darwiche M., Al Rawi Y., Chaaban S. “Effect of Successive Impact Loads from a Drop Weight on a Reinforced Concrete Flat Slab” MATEC Web of Conferences 281, 02003 (2019) INCER 2019.

11. Mohamad Elani, Yehya Temsah. “Comparative Study of Modeling Methods Used to Simulate Initial Stresses in Prestressed Beams Towards Manual Analysis”. Web of Conferences 281, (2019).

12. Ayman Trad, Tarek Sobhieh, Hassan Ghanem, and Yehya Temsah. “Seismic Assessment and Rehabilitation of a historical Masonry Mosque”. Web of Conferences 281, (2019).

13. Jahamy A., Temsah Y., Khatib J.,” The Efficiency of Using CFRP as a Strengthening Technique for Reinforced Concrete Beams Subject to Blast Loading”. International Journal of Advanced Structural Engineering, Sep. 2019.

14. Baraa Elmoussa, Yehya Temsah, Ali Jahami. "Numerical Study for the Effect of Hairpin Shaped Shear Reinforcement on One-Way Shear Capacity of Reinforced Concrete Beams". MATEC Web of Conferences 281, (2019)

15. Yehya Temsah, Ali Jahami, Jamal Khatib, M Sonebi, "Numerical Analysis of a Reinforced Concrete Beam under Blast Loading", MATEC Web of Conferences 149(3):02063, January 2018.

16. Lina Jaber, Yehya Temsah, Yasser El-Mossallamy, Fadi Hage Chehade. "The Effect of Underground Stories on the Dynamic Response of High Rise Buildings". 2nd GeoMeast International Congress and Exhibition on Sustainable Civil Infrastructures. Egypt 2018.

17. Youmn Al Rawi, Yehya Temsah, Ali Jahami. "The Effect of Impact Loads on Prestressed Concrete Slabs". International Structural Engineering and Construction Conference. Jully 2018.

18. Milad Khatib, Zaher Abou Saleh, Oussama Baalbaki, Yehya Temsah. "Numerical Punching Shear Analysis of Unbonded Post-Tensioned Slabs with Inverted U-Shape". KSCE Journal of Civil Engineering. July 2018.

19. Temsah Y., Jahami A., Khatib J., Sonebi M., "Numerical Derivation of Iso-Damaged Curve for a Reinforced Concrete Beam Subjected to Blast Loading", MATEC Web of Conferences 149(3):02016, January 2018.

20. Al Rawi Y., Temsah Y., Ghanem, H., Jahami, A. and Elani, M. (2018). "The Effect of Impact Loads on Prestressed Concrete Slabs". The Second European and Mediterranean Structural Engineering and Construction Conference. [online] ISEC. Available at: https://www.isec-society.org/ISEC_PRESS/EURO_MED_SEC_02/html/STR-28.xml [Accessed 6 Aug. 2018].

21. Elani, M., Temsah Y., Ghanem H., Jahami, A. and Al Rawi Y. (2018). "The Effect of Shear Reinforcement Ratio on Prestressed Concrete Beams Subjected to Impact Load". The Second European and Mediterranean Structural Engineering and Construction Conference. [online] ISEC. Aug. 2018.

22. Jahami A H., Temsah Y A., Khatib J., Sonebi M., "Numerical Study For The Effect of Carbon Fiber Reinforced Polymers (CFRP) Sheets on Structural Behavior of Posttensioned Slab Subjected to Impact Loading", Proceedings of the Symposium on Concrete Modelling – CONMOD2018 , RILEM PRO 127, Edited by Erik Schlangen et al., 2018.

23. Sandy Chaaban, Oussama Baalbaki, Yehya Temsah. "Effect of Concrete Creep on the Shortening of Vertical Elements in High-Rise Buildings". International Structural Engineering and Construction. July 2018.

24. Jaber J A., Temsah Y A., Hage Chehade F., El-Mossallamy Y., "Effect of Soil - Structure Interaction Constitutive Models on Dynamic Response of Multi-Story Buildings". Journal of Engineering Science and Technology Review, w 11 (3) (2018).

25. Sabra M Y., Temsah Y A., Baalbaki O M., Abou Mosleh Z., "Repair of Damaged Prestressed Concrete Beams Using CFRP Fabric and Stitching Techniques". International Journal of Civil Engineering and Technology (IJCIET) Volume 9, Issue 10, October 2018.

26. Temsah, Y., Jahami, A., Khatib, J. and Firat, S. "Numerical study for RC beams subjected to blast waves". First International Turkish World Engineering and Science Congress in Antalya. Antalya, Turkey. (2017).

27. Temsah, Y., Jahami, A., Khatib, J. and Firat, S. "Single Degree of Freedom Approach of a Reinforced Concrete Beam Subjected to Blast Loading". First International Turkish World Engineering and Science Congress in Antalya. Antalya, Turkey. (2017).

28. Mehedene Mashaka, Hisham Basha, Yehya Temsah, Adnan Masri. "Optimization of Wall-Frame Resisting System in Buildings Subjected to Seismic Loads" Seventh Alexandria International Conference and Geotechnical Engineering. Egypt 2010.

29. Baalbaki O., Temsah Y., Masri A., "Enhancement of the Ductile Behavior of R.C. Frames Under Lateral Forces by Fiber-Paper Concrete". Proceeding of the International Engineering Conference of Curtin University of Technology Sarawak, Malaysia November 2007.

30. Temsah Y., "On the Influence of Openings in the Seismic Response of Structural Walls". Twelfth International Conference on Civil, Structural, and Environmental Engineering Computing, Funchal, Madiera, Purtugal, September 2009.

31. Temsah Y., Basha B., El Souri A., "Softening of Joints in Reinforced Concrete Structures: A Non-Linear Dynamic Approach" Twelve International Conference on Civil, Structural, and Environmental Engineering Computing, Funchal, Madiera, Purtugal, September 2009.

32. Challhoub M., Bouillard P., Verbrugge J.C., Temsah Y., "Etude du Comportement Static et Dynamique d'un Pieu Isole Implante dans la Sable par Elements Finis", Proceeding of the International Conference on the Applied Numerical Analysis, Beirut, Dec. 2005.

33. Daudeville L., "Impact of a Reinforced Voncrete Roof Slab By Falling Rocks: Experiments and Modeling", Rivista Italiana Di Geotechnica, February 2004.

34. Baalbaki O., Temsah Y., Sabra M., "Influence of Papers and Fibers on Damage and Structural Behavior of Reinforced Concrete Beams", European Journal of Scientific Research, Vol.4, Nb 3, 2.

35. Basha H., Itani M., Masri A., Temsah Y., "Behavior of Typical Reinforced Concrete Buildings Under Earthquake Forces", 5th Speciality Conference of the Canedian Sociaty for Civil Engineering", Saskatoon, Saskatchewan, Canada, June 2004.

36.

37. Temsah Y., Masry A., Basha H., "Numerical Simulation of the Structural Behavior of a Damaged Reinforced Concrete Building: AICSCE 5, Structural Engineering Dept., Faculty of Engineering, Alexandria, Egypt Dec. 2003.

38. Philippe Berthet-Rambaud1, Yehya Timsah, Laurent Daudeville, and Jacky Mazars. "Finite Element Modelling of Concrete Protection Structures Submitted to Rock Impacts" 16th ASCE Mechanics Conference, Jully 2003 Seattle, USA.

39. Masri A., Basha H., Temsah Y., "Dynamic Behavior of Law-Rise Suspended Steel Building Subjected to Time History Analysis" AICSCE 5, Structural Engineering Department, Faculty of Engineering, Alexandria University, Alexandria, 21544 Egypt, Dec. 2003.

Experience Record:

• 1998 to Date - TEG consultants s.a.r.l (Lebanon).
Position: PM Structural Engineer

R.C and P.C Bridges-Tunnels

2021-2022: Majdek Anjar Interchange Project- Bekaa- Lebanon: including Multi-span bridge crossing Litani river and post-tension precast girder bridge crossing Litani river with wall the related infrastructure works. The deck type consisted precast post-tensioned girders and the concrete piers and abutment are set on pile caps. The scope of work included all structural design works, developments of shop drawings, supervision of execution works, and quality control.

2011- 20016: Design Review and Construction Supervision for Suusamyr – Talas – Taraz Road Project, Contract Package No.2 – Phase 2, Kyrgystan

The Taraz-Talas-Suusamyr road project passes through the north-west of the Kyrgyz Republic via the territory of Talas - Oblast in the area of road intersection of Talas mountain range. The road project is from km 52 to km 73. The start point of the road project in phase I which was executed earlier (2004-2009) at Otmek pass km 0.00.

The major components of the works will include:

- New construction of single layer asphalt concrete pavement, base course from crushed stone and gravely sub base;
- Earthworks, widening of sub grade and construction of new sub grade on the sections with re-routing.
- Re-routing of the alignment on small stretches where improvement in horizontal alignment is possible.
- Demolition and construction of new pipes, widening of pipes and their repair.
- Construction of roadside drainage, construction of irrigation channels, box culverts and chutes.
- Installing road signs, road marking, kilometer posts, barriers and snow fences.
- Construction of sidewalks in settlements.
- New construction of bus stops and enclosed bus stops.

In addition, the Consultancy Services covers the infrastructure works such as: sewage network, drainage network, water supply network, storm water drainage and discharge, earthworks, pavements, street lighting, telephone networks, transmission lines, roadway marking and signage, etc.…

- **2009 - 2011: Consultancy Services for Design and Supervision for New Fishing Port at Saadiyat Island Road Bridge on Mina Zayed, Abu Dhabi, U.A.E.**

  This port can park 200 medium size boats and is mainly used for fishing purposes.

  Design and Construction Supervision of the Saadiyat Bridge Fishing Port which includes:
  - 8 Finger Pontoons.
  - Loading and Un-Loading sea-side platform as outdoor auction.
  - Heavy duty crane to elevate boats.
  - Ramps for boats sliding.

  In addition to the following buildings:
  - Maintenance Yard (Covered and Uncovered).
  - Maintenance Store 1000 sq.m.
  - Fisherman Piazza.
  - 1700 Bed Hostels.
  - Administration 1000 sq.m.
  - Mosque and Minaret.
  - Ice Factory (100 tons per day).
  - Indoor Auction
  - Fish market.
  - Cafeteria.
  - ADNOC
  - Required Parking Areas.

  In addition, the Consultancy Services covers the infrastructure works such as: sewage network, drainage network, water supply network, water tanks, storm water drainage and discharge, earthworks, pavements, street lighting, telephone networks, transmission lines, roadway marking and signage, landscape, etc.…

2009-2010: King Fahed- Ain Najem Intersection Project- KSA: including four bridges of length equal to 120, 140, 118, and 270 respectively. The deck types consisted of prestressed concrete cast in place slabs, and precast prestressed girders.

2009-2010: King Fahed- El Qura El Sharkiah Intersection Project- KSA: including 238 m prestressed concrete bridge. The deck system consisted of precast prestressed concrete girders.

2009-2009: King Abdulah- Makka Road Project- KSA: including 210 m prestressed concrete bridge. The deck system consisted of precast prestressed concrete girders.

2009-2009: King Abdulah- Al Najah Intersection Project- KSA: including 210 m prestressed concrete bridge. The deck system consisted of precast prestressed concrete girders.

2009-2009: King Abdulah and King Fahed Intersection Project- KSA: including 83 m reinforced concrete -4 lanes- tunnel

2008-2009: Kulyab - Kalaikhumb Road Project - Tajikistan: the project is composed of 2 parts:

- The first consists of a structural assessment of existing reinforced concrete and steel bridges, in order to evaluate the damages and propose the optimal retrofitting system of decks, bearings, and concrete supports (piers, abutments, wing wall, and foundations)
- The second part consists of:
  - full study of 12 new steel bridges (single, double, and multi-span). The spacing between concrete supports varied from 20 to 34ms and most of the bridges crossed rivers and valleys.
  - Multi-cell reinforced concrete culverts.

2008-2008: King Abdulah and Mohamed Bin Fahed intersection Project- KSA: Multi-span 172ms reinforced concrete bridge. The deck system consisted of precast prestressed concrete girders.

2007-2008: Al Hufuf Ring Road Project- KSA: including 3 reinforced concrete tunnels, four lanes each. the length of tunnels were 15 and 93 meters respectively.

2005 - 2006: Structural designer for the Al-Amine Bridge in Beirut Central District: a portal bridge type 15.4 ms supporting 1.2 m thick backfill and traffic loadings. Cast in situ reinforced concrete sections constituted the bridge super-structure and sub-structural elements.

2003 - 2004: Structural Consultant for the project of dualisation of Onitsha-Owerri road in Nigeria. The structural work included a full design of five viaducts of 40, 60 100, 120, and 140 ms length respectively. The reinforced concrete precast girders with cast-in-situ top slab constituted the super-structural elements. Abutments, piers and foundations on piles constituted the sub-structural elements.

2003 - 2004: Structural Consultant for the project of Mayroubah- Nahr el Joz road in Lebanon. The structural work included a full design of an 80 ms length viaduct. The prestressed precast girder with cast-in-situ top slab constituted the super-structural elements. Abutments, piers and foundations on piles constituted the sub-structural elements

2001 - 2002: Structural designer for the Litani-Yohmor-Arnoun viaduct: a simply supported deck of 36 ms crossing the Litani River near Taybeh village. The precast prestressed girders with cast-in-situ top slab constituted the super-structure of the bridge. Abutments, piers and foundations on piles constituted the sub-structural elements.

1997 - 1999: Structural Consultant, for Aleyh Entrance Project which included the design of two multi-span bridges of prestressed post-tensioned solid deck type and their sub-structural elements

1994 - 1996: Senior Structural Engineer worked the Beirut Outer-Ring (Périphérique) that included a complete design of prestressed Concrete post-tensioned viaducts:
- Multi-span straight, skew and curved bridges of prestressed post-tensioned solid, precast girders, and hollow core deck types
- Reinforced concrete straight and skew bridges of reinforced concrete solid and girder deck types

2003 - 2004: Structural Consultant for the Mar-Mkhael interchange project including the design of 75 ms long tunnel- retaining walls …

2006 - 2009: Structural Consultant for the PAN ARAB HIGHWAY project-in BEKAA, Lebanon including the design of all structural components of the highway, mainly: Viaduct (250 m, 5 spans bridge with 52 ms spans), 4 overpasses, underpass, culverts, retaining walls…

Infrastructures-Rehabilitation and special R.C structures

2020 - On-going: The Consultancy Services for Supervision of the Execution of sewage treatment plant at Bekaa- Lebanon

The works include:
- designing the structures of the treatment plants, including biological tanks, clarifiers, splitters, digester, control buildings and pump underground storage chambers.
- Shop drawings, specs and BOQ
- Supervision of execution works
- Technical quality control

2009 - 2011: The Consultancy Services for Supervision of the Execution of Water Supply Works in Jabal Amel – South Lebanon

The works include:
The Works include but not limited to potable water execution and rehabilitation works in the region of Jabal Amel including pipeworks, reservoirs and potable water pumping stations.
Pipework shall include the supply and installation of various types of valves, fittings, accessories, water meters, branch outs, house connections, connection of the new lines to existing transmission lines, networks or reservoirs, and the construction of potable water reinforced concrete valve chambers, thrust blocks, and other related items.
The pipes shall be manufactured of ductile iron (of diameters varying between ND150 and ND600) and polyethylene (of diameters varying between OD40 and OD150).
The installation of the pipelines includes and is not limited to asphalt and concrete removal trench excavation, pipe bedding, laying, backfilling of pipe trenches and reinstatement of roads.

The potable water project consists of the following:
1. Transmission Lines: 90Kms
2. Distribution Networks: 71Kms
3. Ground Reservoirs: 2000m^3 – 2 Nos., 1000m^3 – 2 Nos., 500m^3 – 9 Nos.,

300m^3 – 3 Nos., 250m^3 – 4 Nos., 125m^3 – 4 Nos.
4. Water Towers 300m^3 capacity: 3 Nos.
5. One major Water Pumping Station in Chakra and 6 Booster Pumping Stations.
6. All related Electrical Transformers/Sub-stations;
7. Civil and reinstatement works.

2021 - 2022: The consultancy services for the infrastructure work of Prince Turky interchange- KSA

The works include:
- designing the structures of underground chambers for culverts and flood control.
- Shop drawings, specs and BOQ
- Technical quality control

2006 - 2009: The Consultancy Services for Supervision of the Construction of South Beirut Coastal Collectors and Pumping Stations [Naameh (Damour) Ghadir]

The works include:
1. Provide, lay and test of about 18Km of wastewater gravity pipes ranging in diameter from 200 to 900 UPVC & concrete pipes.
2. Provide, lay and test of about 7.2Km of wastewater pressure pipes, ranging in from 500mm and 800mm G.R.P Pipes.
3. Provide, lay & test of about 12.5 of wastewater gravity pipes ranging in diameter from 200m to 400mm UPVC & concrete pipes at Khaldeh area.
4. Construct, equip & commission Khaldeh (PS0), El Naameh (PS1) and Damour (PS2) pumping stations.

2005 - 2006: Structural consultant for the MSW Treatment Plant Project–Saida, for the supervision of the execution of structural works (Technical +quality control)

2003 - 2004: Structural consultant for Thamar University Project in Yemen. The study included the design of a 36 ms high elevated water tank (capacity 600 m3). The lateral forces due to wind pressure and earthquake were taken into consideration in the structural study

2003 - 2009: SIDOUN Environmental- Structural consultant for MSW Treatment Plant-Saida project. The study included the design of:
- Four arched roof halls (single and double arches) covering 36 and 2x37.5 ms spans respectively
- Digesters -solid waste containers-and water tanks (capacity 3400, 4100 an 21000 m^3 respectively)
- Sludge-Process- Potable tank of rectangular section with total capacity of 8400 m^3
- Mechanical Hall (110*55 m), the roof slabs are of post-tensioned precast girder type
- Office and Control buildings

2001 - 2003: Structural designer for the following projects:

- Batoulay water tank: an elevated circular water tank (height 18 ms, capacity 5000 m3) in Batoulay village
- Wadi-Jilo water tank: and elevated conical water tank (height 13.5 ms, capacity 5000 m3) in Wadi-Jilo village.
- Mechanical and control buildings of the previous water tanks (halls of large framing system for the pumps and mechanical equipments)

2002 - 2003: Project Engineer in rehabilitation of the El-Barbir Hospital and the BAU administration buildings Projects

2002 - 2003: Structural Consultant for the study of strengthening and rehabilitation works for a partially damaged residential building in Mieh-Mieh village

2001 - 2002: Structural Consultant for the study and supervision of strengthening and rehabilitation works for a partially damaged residential building in the suburb of Sida

1994 - 1996: As Project Engineer in the Infrastructure Rehabilitation Project for the Northern and Southern Suburbs of Beirut, including the design of culverts, retaining walls, stalling basins …

Towers and Buildings (summary of)

2009 - 2011: Structural consultant for Wazzan & Ghaith tower project in Beirut district, Lebanon. The project consists of 3 high rise buildings with common 6 basement floors, ground floor and 3 podium floors, than 31, 33, and 45 residential floors respectively. The structural studies included the full analysis ad reinforced concrete and prestressed concrete elements of the buildings.

2008 - 2011: Structural consultant for the CBCO's Sky Towers project in Khaldeh, Lebanon. The project consists of 10 residential buildings with number of stories varying from 12 to 22, and 2 club buildings (Main and wither). The structural studies included the full analysis ad reinforced concrete and prestressed concrete elements of the buildings.

2006 - 2007: Structural consultant for the following projects:

- Al Motak Tower Hotel- Makka Saudi Arebia of 33 stories of 130 ms total height, the structural studies included seismic analysis, wind pressure analysis for conventional –code generated forces-, design of Reinforced Concrete flat slabs, and design shallow foundations.
- Alm Motak Tower Office- Jedda-Saudi Arebia: 73 stories of 270 ms total height, the structural studies included seismic analysis, wind pressure analysis for conventional –code generated forces-, design of Reinforced Concrete flat slabs, and design shallow foundations.
- Almati tower- Kazakhstan: 24 stories of 80 ms total height, the structural studies included seismic analysis and concrete design in zone 4.

2006 - 2007: Structural consultant for the Qatar Twin-Towers Project which consists of three buildings:
- Two towers of 49 stories (residential building and office building) of 230 m total height connected at roof levels with a steel bridge.
- Eleven story –Multi function building. The structural studies included seismic analysis, wind pressure analysis for conventional –code generated forces- and wind tunnel forces, design of post tensioned floor slabs, and design of deep foundations

2005 - 2006: Structural consultant for the Twin-Palm Towers Project which consists of three buildings:
- Two towers of 57 stories (residential building) of 250 m total height
- Nine story –middle- parking building. The structural studies included seismic analysis, wind pressure analysis for conventional –code generated forces- and wind tunnel forces, design of post tensioned floor slabs, and design of deep foundations

2004 - 2005: Structural consultant for the following projects in Qatar:
- Khaled El Majed residential tower: 30 stories building of 125ms high
- Saiid EL Majed office tower: 25 stories building of 125ms high
- El Dafna office tower: 40 stories building of 150ms high, the structural study included the effects of 150km/hr wind pressure on the towers

2004 - 2005: Structural consultant for the Ministry of Education and Higher Education Building in Beirut (70 ms high). The structural study included the seismic effects on the building

2001 - 2003: Structural designer for the Batloun Technical School (TS) projects

2002 - 2003: Structural Consultant for the Study the New-York furnished apartments building including structural analysis, design of seismic resisting system and shoring system

1998 - 1999: Structural consultant, for the "Al Kamal" residential project, responsibilities includes study of 22 story residential towers to resist earthquake effect as well as overall stability.

1998 - 1999: Structural consultant, responsibilities include study of Sybline factory (PATCHI) and other projects in Saudi Arabia.

1996 - 1998: Structural Consultant, responsible for DOHA project which included a study of 8 residential buildings, commercial center, a sport hall with seismic stability study, and two residential buildings in Broumanah.

1994 - 1996: As senior Structural Engineer, worked on structural design of buildings and hospitals including seismic stability and technical control.

Health Projects:

- **Construction of 200 Bed Maternity – Pediatric Hospital**
  Sulaimany – Kurdistan Region

  Hospital complex consists of 3 major blocks: Main Hospital – Staff Accommodation – Service Building.

  The design concept of the project was to achieve a perfectly functional hospital with the best working spaces, function & medical equipments.

  All departments were well distributed among the hospital floors to attain the most comfortable circulation between them.

  The project consists of six floors and two basement floors of total area: **30,479** sq.m.

- **Construction of 200 Bed Emergency Hospital**
  Sulaimany – Kurdistan Region

  Hospital complex consists of 3 major blocks: Main Hospital – Staff Accommodation – Service Building.

  The design concept of the project was to achieve a perfectly functional hospital with the best working spaces, function & medical equipments.

  All departments were well distributed among the hospital floors to attain the most comfortable circulation between them.

  The project consists of six floors and two basement floors of total area: **37,018** sq.m.

- **Construction of 200 Bed Rehabilitation Center**
  Sulaimany – Kurdistan Region

  Hospital complex consists of 3 major blocks: Main Hospital – Staff Accommodation – Service Building.

  The design concept of the project was to achieve a perfectly functional hospital with the best working spaces, function & medical equipments.

  All departments were well distributed among the hospital floors to attain the most comfortable circulation between them.

  The project consists of six floors and two basement floors of total area: **37,160** sq.m.