

# SHAM\_E CONSULTING ENGINEERING COMPANY

- Geotechnical Engineering and Mechanics of Materials
- Road and Bridges
- Structure, Building and Strengthening



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# Sham\_e Consulting Engineering co.

- **Geotechnical Engineering and mechanics of materials**
- **Roads and Bridges**
- **Structures, Buildings and strengthening**

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## 1- Introduction

“If you give in everyone's hand a candle, dispute will be out of their conversation.”

This is clear that in the age of development of human societies and modern constructions, it is necessary to take high steps to develop the engineering knowledge of the country and optimize the analysis, design and implementation of projects. For achieving the above goals, this is our responsibility to emphasize on improving the quality of construction meantime the increase of quantity. And this is not possible except with the special care of engineers in acquiring new knowledge and using the experience gained and also creating a suitable environment for further consideration the stages of recognition, study and design and implementation of projects.

In order to increase the technical capability of the country, it is inevitable that the importance of consulting industry and consulting engineer services as the main infrastructure of technology transfer, effective communication between university and industry, encouraging innovations, integrating new technologies with current domestic needs, applying engineering experiences and judgment in the field of civil engineering.

This collection, believing in the realization of the basic principles of study and consulting in the civil industry, using the expertise of a number of university professors in the country and also having experts with different work records and valuable experiences from various provincial and national projects, provides hardware and software facilities and resources in accordance with domestic facilities and new foreign technology, obtaining a rating from the Vice President for Strategic Planning and Supervision in the areas of road construction, bridge construction, geotechnics, structures, strengthening and building is ready to cooperate and present technical and engineering services.

## 1- Technical attitudes:

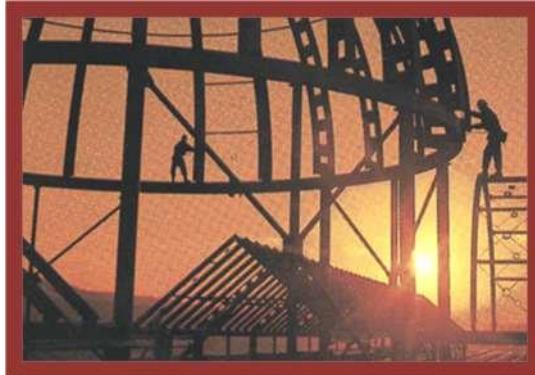
2.1- Geotechnics and strength of materials



2.2- Road and Bridge



2.3- Structure, Building and Strengthening



2.4- Design management



## 2.1- Geotechnics and strength of materials



### 2.1.1 General

Since land is responsible for the ultimate load-bearing role of civil structures and projects are generally built with soil, above the soil or in the soil, it is necessary to identify the bed, surveys and measures to provide information about the load-bearing capacity and hardness properties of the infrastructure. Soil and structure action, land profile, loan sources, recognition of instabilities and consequences of earthquake.

Construction and development on new and problematic sites, as well as the type of construction with embankments, is expanding in today's world due to new demands as well as the phenomenon of population growth. The experiences gained from the earthquakes of the last two decades as well as the increasing construction of earth structures have attracted the attention of civil engineers and manual workers more than ever to soil as cheap materials available and with flexible and active properties. It has been maintained, as well as using in dam construction, improvement, stabilization and optimize use of problematic sites.

In most cases, it is observed that functionally, geotechnical studies have been omitted, or if necessary, unnecessary or even additional measures are taken. In addition, the limits of using theoretical relationships in determining bearing capacity and meeting are not clear and the results of on-site tests have received less attention. In the event that, in the last two decades on-site experiments have expanded and instead of taking small samples of soil samples and transporting them to the laboratory and conducting tests in conditions different from what happens in implementation, the devices have been taken to the site and measured in more practical conditions. Hardness and strength parameters in soil, studies related to bed properties are performed.

In addition to geotechnical studies, research and studies in the laboratory of strength of materials and correct evaluation of performance as well as quality control of existing materials or new materials during construction, will improves the reliability, durability and stability of projects and thus maintaining and increasing national capital.

## **2.1.2 Geotechnical and soil mechanics services**

1. Geotechnical investigations, Preparation and presentation of Geotechnical reports
2. Controlling sufficiency of foundations for existing structures
3. Soil mechanics laboratory testing (Index, Shear resistance, stiffness, etc.)
4. Non-destructive quality control inspection (Ultrasonic, liquid penetrant, etc.)
5. Various common soil mechanics testing as steel, concrete, sand and gravel, etc.
6. Settling in-site laboratories for materials quality control (Concrete, Soil, and Asphalt)
7. Designing site stabilization and improvement systems for sensitive construction projects
8. Inspecting geotechnical damages and suggesting prevention and repair measures
9. Determination and assessment of borrow sources
10. Interpreting material strength and geotechnical test results
11. Offering short term courses on geotechnical engineering, site improvement, deep foundations, soil structures, etc.
12. Technical consultation on improving common or uncommon foundations in construction projects
13. Designing anchored and non-anchored excavations
14. Designing flexible and rigid retaining systems

### 2.1.3 Summary of residential, commercial and sports structures geotechnical projects investigation

No.	Project	Employer	Location	Presented services type		
				Typical laboratory	Geotechnical investigation	Others
1	Supplementary geotechnical investigation and design of Sorkhrud 18 floors residential building infrastructure	Private	Mazandaran		✓	
2	Design of Namak Abrud B residential building infrastructure	Ati Saz Company	Namak Abrud		✓	
3	Design of Babul Justice optimization system and foundation	Babul Justice	Babul		✓	
4	Investigation of supplementary geotechnical and design of infrastructure strengthening system	Private	Fraidonkanar		✓	
5	Geotechnical investigation of Babulsar residential building	Private	Babulsar		✓	
6	Optimization of bed and foundation repair of Kerman residential building		Kerman		✓	
7	Study, design and monitoring; organizing drainage and insulation of Elahieh residential building project	Vanak park	Tehran		✓	Design and implementation of drainage and insulation
8	Resident supervision and superior supervision over the implementation	Ministry of Communications and Technology (Kashaneh Resilient	Tehran			Resident supervision and superior supervision over the implementation

	of the guard structure of the CFT Twin Tower project	Concrete Company)				n of the guard structure
9	Geotechnical investigation of residential - Commercial complexes of Sayad Shirazi Shahriar	Royal Aria Building	Shahriar - Tehran	✓	✓	
10	Qaeim tower geotechnical investigation	Yas Cooperative	Tehran	-	✓	
11	Nagin gharb residential complex geotechnical investigation	Judiciary	Tehran, Vrdavard	-	✓	
12	supplementary geotechnical investigation of Mazandaran Narges hotel	Mazandaran Sustainable Housing of Civil Structural	Mazandaran – Sary	-	✓	
13	Optimization of G avenue residential building	Private	Tehran – G avenue	-	✓	
14	Optimization of Sary Waste incineration plant bed	Sary municipality	Sary	-		
15	Optimization of Sayad Shirazi site	Royal Aria Building	Shahriar	-		
16	Geotechnical zoning of Dorud city seismic	Inghalab Islami Housing foundation	Khoram Abad Lorestan	-	✓	
17	Design and optimization of Sika project foundation	Private	Namak Abrud		✓	

18	Optimization of Babul residential building by micro pile	Private	Babul	-	✓	
19	Design of Gourd structure	Private	Tehran, Tawnier avenue	-	✓	
20	Repair and optimization of Babul residential building foundation	Private	Babul	-	✓	Occurrence of punch
21	Art and Culture complex of Ray city	Housing and urban development of Tehran province	Tehran – Ray city	-	✓	Checking the adequacy of the foundation
22	Meyaneh Industrial town project	Arak industrial complex	Azerbaijan - Middle East	-	✓	-
23	Neopan factory project	Management of Neopan factory project	Gilan – Foman	-	✓	-
24	Construction of concrete reservoir	North Agro-industry Company	Mazandaran – Sary	-	✓	-
25	The 11 floor of municipality	Sary municipality	Mazandaran – Sary	-	✓	Checking the adequacy of the foundation
26	Janbazan 72 units residential project	North civil and residential company	Mazandaran – Babul	-	✓	-
27	The 25 floor hotel	Real person	Namak-Abrud Mazandaran	-	✓	-
28	Administrative building of University	Azad university of Firozkoh	Mazandaran - Firozkoh	-	✓	Checking the adequacy of the foundation

29	Janbazan 241 units residential project	North civil and residential company	Mazandaran – Fraidonkana r	-	✓	-
30	Letmankan residential towers projects	Farnahad construction company	Tehran – Chetgar	-	✓	-
31	Islamic culture and guidance	Housing and urban development of Tehran province	Central – Karaj	-	✓	-
32	The 54 units residential complex	Inghalab Islami Housing foundation	Mazandaran – Babul	-	✓	-
33	Health and cure network	Housing and urban development of Tehran province	Central – Karaj	-	✓	-
34	Optimization and foundation construction of 12-storey Afsoon coastal building	Real person	Babolsar Mazandaran	-	✓	Pile driving
35	Residential and rented houses in Kerman	Housing and urban development of Kerman	Bam - Barwat	-	✓	-
36	Abu zar Public Library	Housing and urban development of Tehran province	Tehran – Tehran	-	✓	-
37	Governorate	Housing and urban development of Tehran province	Tehran – Rabat Karim	-	✓	-
38	Gorgan Baker Mahaleh residential towers	Housing and urban development of Golestan	Golestan – Gorgan	-	✓	-
39	Dastware boulevard residential project	Inghalab Islami Housing foundation	Tehran – Tehran	-	✓	-

40	The 1560 residential units of Sapidar, Ahwaz city	Housing and urban development of Khuzestan province	Ahwaz – Khuzestan	-	✓	-
41	Residential units of west Azerbaijan province	Urmia Housing Factory	Urmia, Khoj, Salmas, Sardasht, Miandoab, Mahabad and Naqadeh	-	✓	-
42	Residential units of Khuzestan province	Housing and urban development of Khuzestan province	Ahvaz, Mahshahr, Abadan, Shadegan, Khorramshahr, Bandaram Khomeini	-	✓	-
43	Residential units of Kurdistan province	Housing and urban development of Kurdistan province	Burhan Town Sanandaj	-	✓	-
44	The eighteen blocks Mabsan and Moallem residential complexes	Real person	Tehran district 22	-	✓	-
45	Geotechnical investigation of Hedayat hospital	Iran design and implementation house building company	Tehran	-	✓	-
46	Geotechnical investigation and material strength of Ayatollah Kashani hospital	Iran design and implementation house building company	Tehran	-	✓	-
47	Geotechnical investigation of Rostam Rud Noor sport complex	Physical Education Organization	Rostam Rud Noor	-	✓	-
48	Geotechnical investigation of Rostam Rud 3511 gym	Sports places development and maintenance company	Rostam Rud Noor	-	✓	Design of foundation

49	Geotechnical investigation of Ramsar sportsman residence	Sports places development and maintenance company	Ramsar	-	✓	-
50	Geotechnical investigation Physical Education gyms	Physical Education Organization	Tehran and its suburbs	-	✓	-
51	Masjid Sulaiman Talkhab lands	Housing and urban development of Khuzestan province	Masjid Sulaiman	-	✓	-
52	Geotechnical investigation, corrosion evaluation of temporary retaining system for excavation, concrete mix design		Farahzadi, Tehran, Iran			Construction management
53	Improving and consolidating the bed of commercial - Resident buildings of Sayad Shirazi Shahriar	Royal Aria Building	Shahriar - Tehran	✓	✓	Design, monitoring and implementation of micro pile
54	Site improvement of commercial and entertainment complex, Meraj Gheshm		The Gheshm island, Hormozgan, Iran			Design, supervision and construction of micropiles (1200 micropiles)
55	Geotechnical investigation of residential complex, Malek Shahr		Isfahan, Iran			Site investigation
56	Geotechnical investigation of Narges residential complex		Tehran, Iran			Site investigation
57	Geotechnical investigation of Shahr Kord residential complex		Shahrekord, Iran			Site investigation

## 2.1.4 Summary of soil improvement geotechnical investigation

No .	Project	Employer	Location	Presented services type		
				Typical laboratory	Geotechnical investigation	Improvement type
1	Presenting a design model for consolidation and stabilizing the site of Gilan Sabz Cement Factory	Gilan sabs cement industry	Dilman		✓	Design
2	Improving and consolidating the bed of commercial - Resident buildings of Sayad Shirazi Shahriar	Royal Aria Building	Shahriar - Tehran	✓	✓	Design, monitoring and implementation of micro pile
3	Repair and stabilization of Gilan Sabz Cement Factory production line building infrastructure	Tehran cement industry	Gilan Dilman	-		Design, monitoring and implementation of micro pile
4	Geotechnical investigation of Babolsar 4 <sup>th</sup> bridge	Municipality of Babolsar	Babolsar, Mazandaran, Iran	-	-	Design, monitoring and construction of piles
5	Improvement of Fatemeyah Masque foundation bed	Municipality of 17 district	Tehran	-	✓	Design, monitoring and construction of piles (111 item implemented)
6	Improvement of 11 story residential building foundation bed	Mr. Amiri	Mazandaran – Babul	-	-	Design, monitoring and construction of piles (121 item implemented)
7	Improvement of Tabriz cultural and art hall foundation bed	Ministry of Culture and Islamic Guidance	Tabriz	-	✓	Design and implementation of pile and micro pile
8	Optimization and foundation construction of 12-storey Afsoon coastal building	Real person	Babolsar Mazandaran	-	✓	Pile driving
9	The main road of Ahvaz-Mahshahr axis	General Department of Roads and Transportat	Khuzestan – Ahwaz	-	✓	Geotechnical improvement

		ion of Khuzestan Province				
10	Design and optimization of Sika project foundation	Private	Namak Abrud		✓	Design and supervision of vibro flatiron system and stone column
11	Geotechnical investigation of Rostam Rud 3511 gym	Sports places development and maintenance company	Mazandaran Rostam Rud	-	✓	Design and monitoring by consolidation of bed with pile driving method
12	Improving of Azad university of Firozkoh bed foundation	Azad university of Firozkoh	Tehran - Firozkoh	-	✓	Design and implementation of micro pile

## 2.1.5 Summary of police geotechnical investigation

No .	Project	Employer	Location	Presented services type		
				Typical laboratory	Geotechnical investigation	Improvement type
1	Kermanshah Educational Central Command	Naja police	Kermanshah – Kermanshah	-	✓	-
2	Police Central Command	Naja police	Foman and Anzali port	-	✓	-
3	Police Central Command	Naja police	Babolsar and Marzan Abad	-	✓	-
4	Shiraz Examination Town Central Command	Naja	Shiraz	-	✓	-
5	Kordestan Central Command	Police	Kurdistan – Sanandaj		✓	-
6	Geotechnical and Seismography investigation of Kowsar 21 Naja	Naja	Tehran	✓	✓	Seismography
7	Geotechnical investigation of Ray city (Yas 4) metro station	Naja	Tehran	-	✓	-
8	Geotechnical investigation of Leshgrak residential town in Pardees	Naji Sazan Amin Company	Teheran	-	✓	-
9	Geotechnical investigation of Ponak Pardees residential complex	Naji Sazan Amin Company	Teheran	-	✓	-
10	Geotechnical investigation of Melk Shahr residential complex Esfahan	Naji Sazan Amin Company	Esfahan	-	✓	-

11	Geotechnical investigation of Narges residential complex Tehran	Naji Sazan Amin Company	Teheran	-	✓	-
12	Geotechnical investigation of Shahr Kurd residential complex	Naji Sazan Amin Company	Kurd city	-	✓	-
13	Geotechnical investigation of Maryam commercial complex	Naji Sazan Amin Company	Teheran	-	✓	-
14	Ghadir residential complex	Naji Sazan Amin Company	Teheran	-	✓	-
15	Yaft Abad Residential-Administrative complex	Naji Sazan Amin Company	Yaft Abad	-	✓	-

## 2.1.6 Summary of geotechnical investigation in dam and river engineering

No.	Project	Employer	Location	Presented services type		
				Typical laboratory	Geotechnical investigation	Improvement type
1	Supplementary geotechnical investigation of Haraz (Mangal) Dam tunnels diversion	Mazandaran regional water	Mazandaran-Mangal	-	✓	-
2	Geotechnical investigation of Gazo dam	Sistine and Baluchistan regional water	Mirjaveh	-	✓	-
3	Geotechnical investigation of Qad Abad dam	Sistine and Baluchistan regional water	Khash	-	✓	-
4	Geotechnical investigation of Mohammad Abad dam	Gulistan regional water	Mazandaran	-	✓	-
5	Geotechnical investigation of Chat dam	Gulistan regional water	Gulistan	-	✓	-
6	Investigation of Narmab-Cahlchay dam	Gulistan and Mazandaran regional water	Gulistan-Gonbad	-	✓	-
7	Haraz second diversion dam	Gulistan and Mazandaran regional water	Mazandaran-Amol	-	✓	-
8	Shirgah Water resource	Mazandaran regional water	Shirgah-Mazandaran	-	✓	-
9	Bartesh Dehlaran dam and water station	Elam province Jihad agriculture organization	Dehlaran-Elam	-	✓	-

10	Water supply facilities of Hashtpar, Masal and Parasar cities	Gilan regional water	Hashtpar, Masal and Parasar Gilan	-	✓	-
11	Wajargah water reservoirs	Gilan regional water	Wajargah-Gilan	-	✓	-
12	Kalachay and Chaboksar city water reservoirs	Gilan regional water	Kalachay-Gilan	-	✓	-
13	Organizing Shahroud river	Gilan regional water	Wajargah-Gilan	-	✓	-
14	Rubber dams of Sarkhoord, Aq Ghor, Digcheh and Ghaffar Haji	Gulistan and Mazandaran regional water	Gorgan-Gonbad	-	✓	-
15	Half floating oil platform	Iran Marine industries (Sadra)	Mazandaran-Naka	-	✓	Examining the loading of PLT plate
16	Review of Gulistan dam II bearing support stability	Gulistan and Mazandaran regional water	Mazandaran-Gonbad	-	✓	Investigation of soil compaction potential and on-site drift
17	MR1~MR4 underground water reservoir	Water joint-stock company of Gulistan and Mazandaran regional water	Ziraab - Mazandaran	-	✓	-

### 2.1.7 Summary of geotechnical investigation in strengthening schools

No .	Project	Employer	Location	Presented services type		
				Strength of material tests	Geotechnical investigation	Others
1	Geotechnical investigation, strengthening and sounding of 33 schools (year 89)	General Renovation and mobilization Department of Tehran province schools	Teheran	✓	✓	Sounding and repairing
2	Geotechnical investigation, strengthening and sounding of 53 schools (year 88)	General Renovation and mobilization Department of Tehran province schools	Tehran	✓	✓	Sounding and repairing
3	Geotechnical investigation, strengthening and sounding of 51 schools (year 87)	General Renovation and mobilization Department of Tehran province schools	Tehran province	✓	✓	Sounding and repairing
4	Geotechnical investigation, strengthening and sounding of 16 schools (year 87)	General Renovation Department of Hamadan	Hamadan province	✓	✓	Sounding and repairing
5	Geotechnical investigation, strengthening and sounding of Golistan province schools (year 86)	Renovation of Golistan province schools	Gorgan	✓	✓	-
6	Geotechnical investigation, strengthening and sounding of Tehran province schools (year 85)	General Renovation and mobilization Department of Tehran province schools	Schools of districts 1,3&6	✓	✓	Sounding and repairing
7	Geotechnical investigation, strengthening and sounding of Tehran province	General Renovation and mobilization	Qods city, Yar city, Malard, Rabat Karim,	✓	✓	Sounding and repairing

	cities schools (year 85)	Department of Tehran province schools	Bostan and Golistan			
8	Geotechnical investigation, strengthening of Tehran schools (year 84)	Renovation and developmen t schools of the country organizatio n	Schools of districts 6,7&19	✓	✓	-
9	Geotechnical investigation, strengthening of country schools (year 84)	Renovation and developmen t schools of the country organizatio n	Yazd, Harmozgan, Kerman, Fars, Sistan, Bakhteyari, Boshahr, Khuzestan, Lorestan	✓	✓	Sounding and repairing

## 2.1.8 Summary of geotechnical investigation in bridges and other items

No.	Project	Employer	Location	Presented services type		
				Local laboratory	Geotechnical investigation	Others
1	Geotechnical investigation of 4 <sup>th</sup> bridge Babolsar	Babolsar municipality	Babolsar	✓	✓	
2	Geotechnical investigation of Loshan bridge	Roads and transportation of Gilan province	Rasht	-	✓	-
3	Fateh baqh of Gorgon bridge	Gorgon municipality	Gorgon	-	✓	-
4	Geotechnical investigation of Takal bridge	Ministry of Transport	Sary	-	✓	-
5	South Balarood Andimashk bridge	Khuzestan province general department of transprotation	Andimashk 1	-	✓	-
6	Wall barrier Sobhaniyeh bridge	Khuzestan province general department of transprotation	Susangerd-Khuzestan	-	✓	-
7	Shatit bridge	Khuzestan province general department of transprotation	Shushtar-Khuzestan	-	✓	-
8	Khuzestan Meyanrood bridge	Khuzestan province general department of transprotation	Khuzestan-Haft tapeh	-	✓	Research
9	Fars province Darulmizan bridge	Ministry of Jihad Agriculture General Department of Rural Roads	Fars-Lamrd	-	✓	-
10	Baba Kalan Kahleloyeh bridge	Ministry of Jihad Agriculture	Kahkeloye-Babakalan	-	✓	Checking foundation

		General Department of Rural Roads				
11	Kana Bist bridge	Ministry of Jihad Agriculture General Department of Rural Roads	Khorasan-Mashhad	-	✓	-
12	Kani kozleh bridge	West Azerbaijan province Jihad Agriculture	West Azerbaijan-Kani kozleh	-	✓	-
13	Improvement of Fatemeyah Qalemorghy mosque foundation	Municipality of 17 district of Tehran	Tehran-Qalemorghy	✓	✓	Site monitoring
14	Codify of Unicone software	Unisoft company of Canada	-----	-	✓	Research
15	Compilation of the book Guidance of pile bearing capacity	Research and education center of Roads ministry	Tehran	-	✓	Research
16	Preparing the book Guidance of foundation and construction of foundation	National Building Regulations compilation and promotion department	Tehran	-	✓	Research
17	Ahwaz-Mahshahr road geotechnical improvement	Khuzestan province general department of transportation	Ahwaz-Khuzestan	-	✓	-

## 2.1.9 Summary of activities performed in local laboratories

No.	Project	Employer	Location	Presented services type		
				Local laboratory	Geotechnical investigation	Others
1	Quality control of production and distribution of asphalt and laboratory services	Civil Engineering and Renovation Organization of Karaj Municipality	Babolsar	✓	-	-
2	The main semi-mainstream network and Ali Bolaghi	Ardabil regional water	Karaj	✓	-	-
3	Golestan Dam Network I	Golistan regional water	Ardabil	✓	-	-
4	MCC Canal	Mazandaran regional water	Gonbad Kavoos	✓	-	-
5	Golestan Dam Network II	Mazandaran and Golistan regional water	Mazandaran-Qaeim shahr	✓	-	-
6	National Noor Road (Wazak - Baladeh)	Ministry of Jihad Agriculture General Department of Rural Roads	Gonbad Kavoos	✓	-	-
7	Shahid Rajaee hydropower dam	Iran Water and Power resources development company	Mazandaran-Sary	✓	-	-
8	Half-floating oil platform	Marine industry of Iran (Sadra)	Mazandaran-Naka	✓	-	-
9	Landscaping of Imam Khomeini Square metro station	Municipality of Tehran	Tehran	✓	-	-
10	Surface water collection canals in Tehran	Khakrizab company	Tehran	✓	-	-
11	Construction of East Molavi Street	Municipality of Tehran	Tehran	✓	-	-
12	Omid tower residential complex	Broadcasting Organization	Tehran-Zafrania	✓	-	-

### 2.1.9 Selected figures of geotechnical implementation operations



Figure-1 Design of foundation system, compaction and piling operations of 12-storey residential complex in Babolsar (1382)



Figure-2 Drilling operations in Yaftabad residential complex, Naji Sazan Amin (1388)



Figure-3 Geotechnical investigation of Qaderabad Dam, Sistan and Baluchestan Regional Water joint-stock Company (1388)



Figure-4 Geotechnical studies of Gozo Dam, Sistan and Baluchestan Regional Water Joint Stock Company (1388)

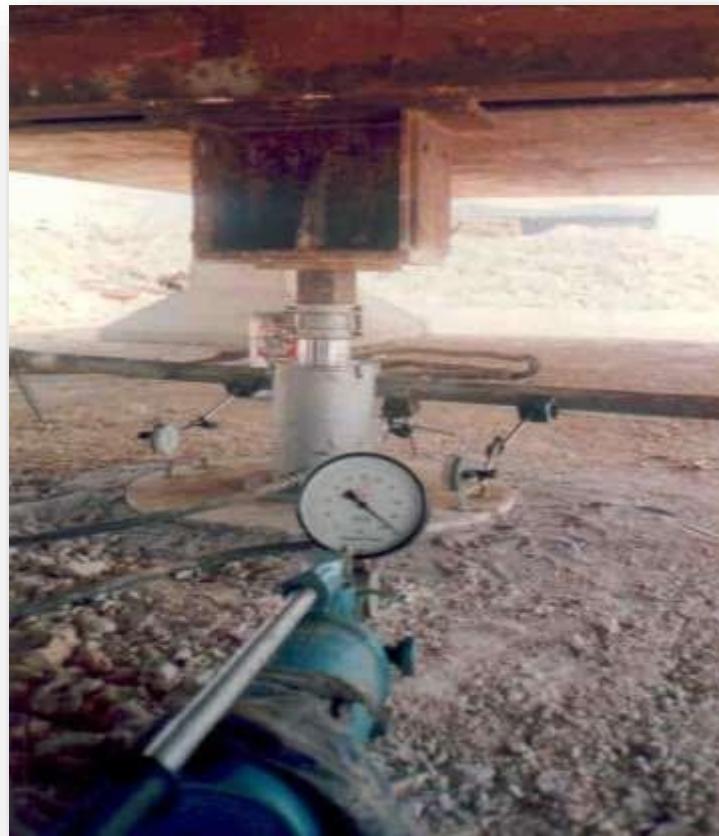


Figure-5 View of the plate loading test on the Caspian Sea site, Sadra Company (1381)



Figure-6 View of the cranes installation to perform plate loading test, Sadra Company, Caspian Sea Complex (1381)



Figure-7 Drilling operations in the 34-storey residential tower project of Sika, Chalous (1389)



Figure-8 Samples taken from the 34-storey residential tower project of Sika, Chalous (1389)



Figures-9 & 10 Views from Ramasar airport (1389)



Figures-11 & 12 Excavation of machine trial boreholes in the fourth bridge of Babolsar (1390)



Figures- 13 & 14 Pile drilling operation of Babolsar bridge foundation (1391)



Figures-15 & 16 Views of Negin Gharb project (1391)



Figures-17 & 18 Views of execution improvement and consolidation operations of the site of Guilan Sabz Cement Factory (1392)

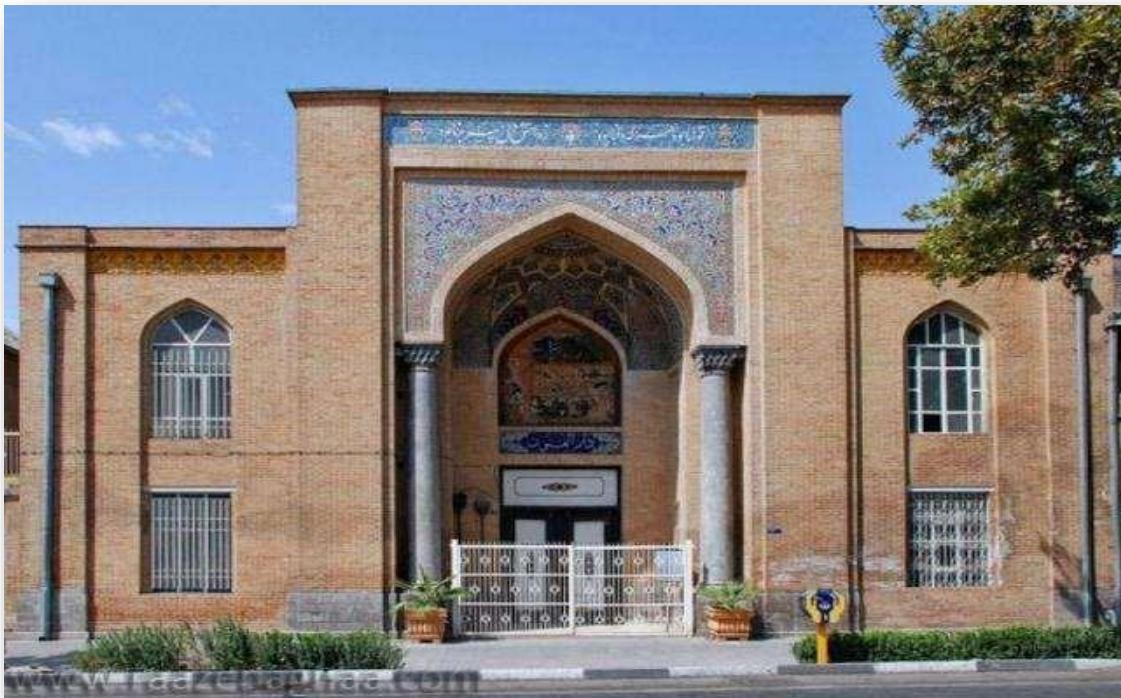


Figure-19 View from the entrance of the Dar al-Fonun school, equipping the country's schools (1384)



Figure-20 View of drilling and sounding operations in the Dar al-Fonun school area, equipping the country's schools (1384)



Figure-21 Concrete core test of Ayatollah Taleghani concrete Foundation, District 5, Tehran, Equipping Tehran schools (1387)



Figure-22 Concrete cores taken from schools to determine compressive strength, equipping Tehran schools (1387)



Figure-23 Machine trial borehole drilling operation of Baquerul Uloom Shahriar school, equipping Tehran schools (1388)

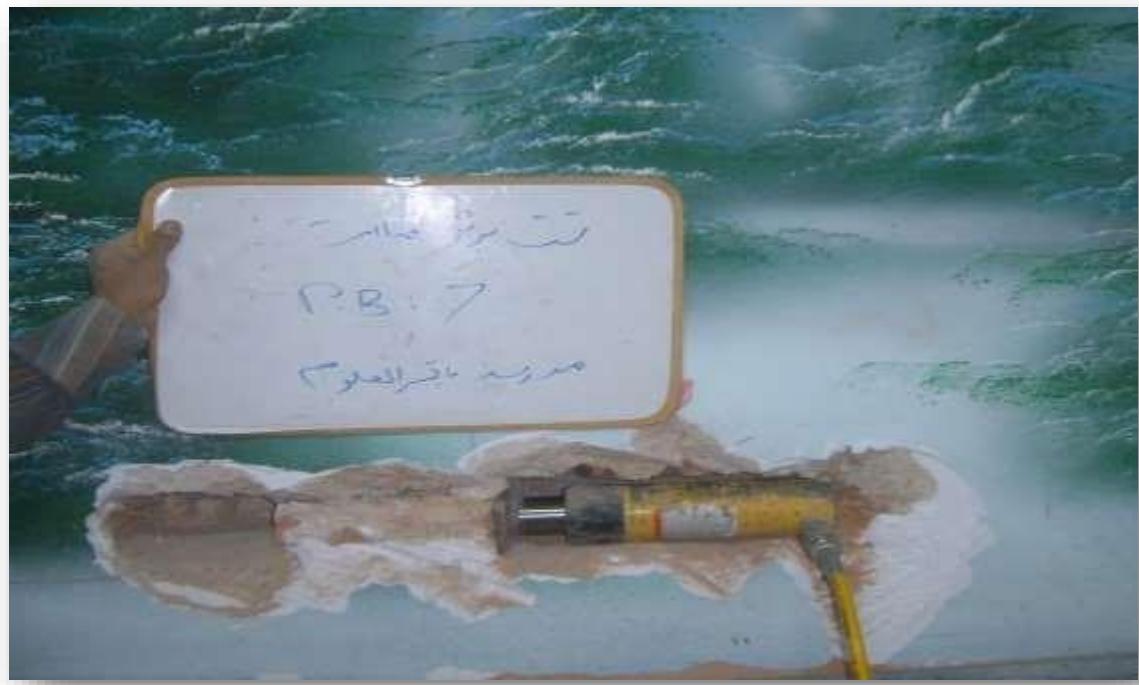


Figure-24 Mortar cutting test operation of Baquer Al-Uloom school in Shahriar, equipping Tehran schools (1388)

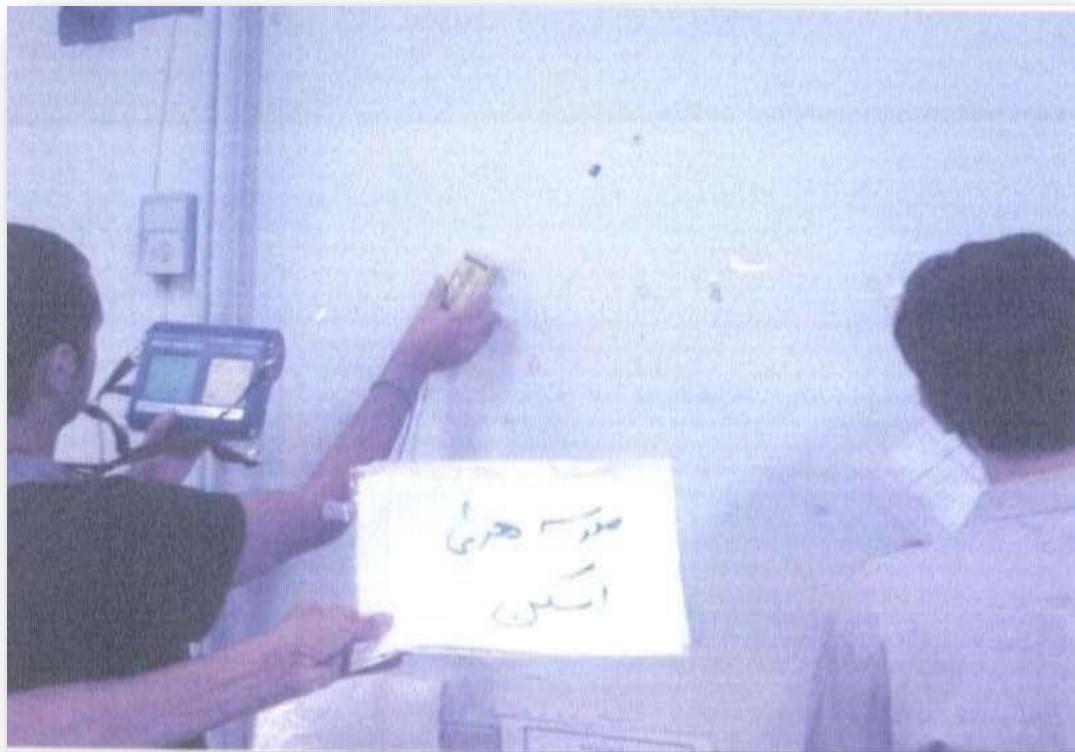


Figure-25 Scanning the brace of Hoda school located in the 19<sup>th</sup> district, equipping Tehran schools (1389)



Figure-26 Afshar Naderi school page loading operation located in the 19<sup>th</sup> district of Tehran school equipment (1389)



Figure-27 Performing micro piles in the project of improving the foundation of Fatemeh Mosque located in Qala-e-Marghi, District 17 Municipality (1387)

## 2.2- Road and Bridge



### **2.2.1 General of road engineering**

Like the neural network and the vascular system in the human body, which play the role of transmitting messages and blood for survival, in any country and in the global community, the road can be the means of moving facilities, products and wealth. As with other construction projects, studies play a major role in route design, geometry, and ultimately road, sea, air, and can therefore include safe design with ease of use and ultimately economics.

In the direction of construction and inclusive development in the country, unfortunately, improper design of roads, pavement problems, increase the repair costs, uneven distribution and density of traffic, not only have excessive and indirect costs due to poor performance, but also benefit from poor performance, has caused problems.

Therefore, in order to accelerate the communication of national capital conservation, increase the durability and useful life of roads, optimize designs, use new hardware and software in road construction, take basic steps and the need to use research and investigation in the road industry and transportation of the country is one of the fundamental necessities.

### **2.2.1 Services available to present in main roads and secondary roads**

- Performing investigation and designing main and secondary roads
- Establishment of resident monitoring collection in the implementation of road construction projects
- Checking the bearing capacity of the road bed after preparing for the pavement
- Design, investigation, improvement and widening of built roads
- Studies of drifts and instabilities in the road body
- Optimal design of structures, including different walls and aqueducts
- Improvement investigation to the bed and optimization of the thickness and materials of the road body
- Evaluation of stability and reinforcement of trenches and excavation
- Consulting, design and supervision of controlled excavation
- Holding training courses on road construction, pavement and related structures

### 2.2.3 Summary of activities performed in main and secondary roads

No.	Project	Employer	Location	Project specification	Presented services type			
					Phase I	Phase II	Phase III	Higher monitoring
1	Monitoring on implementation operation of Chahar Hasar line	Karaj municipality	Chaloos avenue	11 km	✓	✓	✓	-
2	Monitoring Ahwaz Andimashk axis	General department of road and urban development of Khuzestan	Khuzestan	21 km	-	-	✓	-
3	Monitoring on implementation operation of Handijan-Mahshahr axis	Ministry of road and transportation-Transportation Infrastructure Construction and Development Company	Khuzestan	Main roads 41 km length	-	-	-	✓
4	Double control of Ramsar Airport runway development	Ministry of road and urban development	Ramsar		✓	-	-	✓
5	High supervision of Ahvaz western belt construction	General department of road and Transportation of Khuzestan	Ahvaz western belt		✓	✓	-	✓
6	Ahvaz - Andimeshk axis, second lot, supervision of improvement	General department of road and Transportation of Khuzestan	Ahvaz Andimeshk		✓	✓	-	✓
7	Izeh-Dehdez Karoon 3 axis, supervision of improvement	General department of road and Transportation of Khuzestan	Izeh-Dehdez Karoon 3		✓	✓	-	✓
8	Geotechnical services investigation Izeh-Dehdez axis variant 1 bridge	General department of road and Transportation of Khuzestan	Izeh-Dehdez	Axis improvement 18 km	✓	✓	-	-
9	Variant tunnel investigation 5 Izeh-Dehdez Karun 4 axis improvement	General department of road and Transportation of Khuzestan	Izeh-Dehdez	Axis improvement 18 km	✓	✓	-	-
10	Improvement Izeh-Dehdez Karun 4 axis improvement	General department of road and Transportation of Khuzestan	Izeh-Dehdez	Axis improvement 18 km	✓	✓	-	-
11	Site monitoring	17	Monitoring of the triple areas of	Municipality of district 17 Tehran	Tehrān Qal-e	✓	✓	Site monitoring

			District 17		morgh i			
12	Road investigation around Karun site	Arvand Free Zone Organization	Abadan-Khoramshahr	Main road	✓	✓	-	-
13	Road investigagation along the passage of the administrative-service site of zone B.	Arvand Free Zone Organization	Abadan-Khoramshahr	Main road	✓	✓	✓	✓
14	Site monitoring of Abadan and Khorramshahr zone cities	General department of road and transportation of Khuzestan	Abadan-Khoramshahr		✓	✓	✓	✓
15	Investigation of Yalrud-Sorkhak main road	Ministry of road and transportation	Mazandaran-Tehran	Main roads 11 km length	✓	✓	✓	✓
16	Sorkhak to Yalrud road	Ministry of road and transportation	Mazandaran-Tehran	Main roads 25 km length	✓	✓	-	-
17	Abadan-Mahshahr axis improvement	Ministry of road and transportation	Khuzestan	Main roads 91 km length	✓	-	-	-
18	Design of Baladah-Yalrud axis	Ministry of road and transportation	Mazandaran	Main roads 8 km length	✓	✓	-	-
19	Sarbandar-Abadan axis road	Ministry of road and transportation	Khuzestan-Mahshahr	Main roads 31 km length	✓	✓	✓	✓
20	Four-lane studies of Abadan-Mahshahr road	National Iranian Petroleum Products Distribution Company	Khuzestan	Main roads 11 km length	✓	✓	-	✓
21	Mahshahry belt road	General department of road and transportation of Khuzestan	Mahshahr	Main roads 11 km length	✓	✓	✓	✓
22	Asphalt pavement and widening of Mahshahr road in Ahvaz	General department of road and transportation of Khuzestan	Khuzestan province	Widening and repairing of existing road	✓	✓	✓	✓
23	Ahwaz-Mahshahr axis road	General department of road and transportation of Khuzestan	Khuzestan-Ahwaz	Main roads 13 km length	✓	✓	✓	✓
24	Ahwaz-Mahshahr axis road	General department of road and transportation of Khuzestan	Steel Industry-Crete Camp Three-Way	Main roads 31 km length	-	-	-	Geotechnical improvement

## 2.2.4 Summary of activities performed in road engineering

No.	Project	Employer	Location	Project specification	Presented services type			
					Phase I	Phase II	Phase III	Higher monitoring
1	Asphalt pavement and widening of Mahshahr road in Ahvaz	Karaj municipality	Khuzestan province	Change and repair of existing road	✓	✓	✓	✓
2	Delichai-Hoir Road	General department of road and transportation of Khuzestan province	Tehran-Tehran	Secondary road length 8 km	✓	✓	-	-
3	Mehrabad-Zarah Dar axis road	General department of road and transportation of Tehran province	Tehran-Tehran	Secondary road length 14 km	✓	✓	-	-
4	Fadak Road (Qomshloo)	General department of road and transportation of Tehran province	Tehran-Tehran	Secondary road length 5.5 km	✓	✓	-	-
5	Amirabad-Hajiabad axis road	General department of road and transportation of Tehran province	Tehran-Tehran	Secondary road length 4.5 km	✓	✓	-	-
6	Gachsaran city belt	Governor's Technical Office	Kahkelye and Bavir Ahmad-Gachsaran	Main road length 15 km	✓	✓	-	-
7	Wazak-Baladeh National Road	Ministry of road and transportation	Mazandaran-Tehran	Secondary road length 56 km	-	-	✓	✓
8	Access to silos in Fars-Khuzestan province	Country Grain Organization	Fars-Sewand, Fasa, Firuz Abad and Shushtar	Main road	✓	✓	✓	✓
9	Access to silos in Golestan and Hamedan provinces	Country Grain Organization	Nahawand, Ali Abad Kanol	Main road	✓	✓	✓	✓
10	Access road to Kermanshah-Khorasan province silo	Country Grain Organization	Kermanshah-Sanqar Kaleyayee and Torbat Jam	Main road	✓	✓	✓	✓
11	The national way of Bazoft	Ministry of road and transportation	Khuzestan Masjed Sulaiman	Secondary road length 26 km	✓	✓	✓	✓
12	Design of Amiran-Khoranak road axis	General department of road and transportation of Tehran province	Tehran	Rural road	✓	✓	-	-
13	Designing the access road to Lavasan village	Inqalab Islami housing foundation	Tehran	Road and structures	✓	-	-	-

## 2.2.5 Summary of activities performed in intersections investigations

No.	Project	Employer	Location	Project specification	Presented services type			
					Phase I	Phase II	Phase III	Higher monitoring
1	Arak intersection	Arak municipality	Arak	Non-level intersection	✓	✓	✓	-
2	Design of Amazadeh Abdullah intersection with Haraz axis	General department of road and transportation of Mazandaran province	Mazandaran Amol	Non-level intersection	✓	✓	-	-
3	Design of Haraz-Amol belt intersection	General department of road and transportation of Mazandaran province	Mazandaran Amol	Non-level intersection	✓	✓	-	-
4	Design of Ghaemshahr belt- Iskanderkola intersection	General department of road and transportation of Mazandaran province	Mazandaran Qaeim shahr	Non-level intersection	✓	✓	-	-
5	Design of Ghaemshahr eastern belt - Kouchaksara intersection	General department of road and transportation of Mazandaran province	Mazandaran Qaeim shahr	Non-level intersection	✓	✓	-	-
6	Design of Zoghal Chal nol-level intersection	General department of road and transportation of Mazandaran province	Mazandaran Sary	Non-level intersection	✓	✓	-	-
7	Safitication oif Tazehabad-Rezvanshahr intersection	General department of road and transportation of Gilan province	Gilan Rezwan shahr	Non-level intersection	✓	✓	-	-
8	Safitication Ramhormoz and Haftgol intersections	General department of road and transportation of Khuzestan province	Khuzestan Masjed Sulaiman	Level intersection	✓	✓	✓	✓

## 2.2.6 General of bridge engineering

The bridge is a technical and artistic structure which is built to continue the way of communication and crossing deep obstacles. Bridge is a strategic sensitive and costly structure than the road structure connected to it, and in land and sea communications by the lack of bridges disrupts the flow of traffic or makes it impossible.

Unlike other conventional structures, the bridge project, in addition to withstanding the usual dynamic loads such as wind and earthquake in service, is faced with the effects of dynamic loads from floods from below and traffic loads and impacts from above or below. In addition, the cost of construction and time required for the unit length of the bridge is higher, and how to build and provide its executive facilities is much more difficult than the length of the communication road unit.

In addition to traffic, geotechnical, hydraulic, environmental, structural, operational and economic considerations, artistic issues have been discussed in bridge design from long time ago. In such a way that architectural considerations can present the structure of the bridge as a suitable perspective landscape and complement of other projects and play a significant role in complementing the historical, artistic and technical creations of the manifestations of civilization.

## 2.2.7 Services available to present in bridge engineering

- Studies and design of road bridges and railway bridges
- Evaluate the performance and capacity of existing bridges
- Testing the loading of built bridges
- Reinforcement studies of existing bridges
- Supervising the implementation and construction of bridges
- Consulting regarding the optimization of the designed bridge system
- Preparation of technical instructions for different parts of the bridge project
- Holding short-term classes in bridge engineering and bridge construction

## 2.2.8 Summary of activities performed in bridge engineering (Design of bridges)

No.	Project	Employer	Location		Presented services type			
				Project specification	Phase I	Phase II	Phase III	Higher monitoring
1	Babolsar pedestrian bridge (water)	Babosar municipality	Babosar	Bridge with 3 span 95m length		✓		
2	Fourth bridge of Babolsar concrete and steel section	Babosar municipality	Babosar	Bridge with 500m	✓	✓	✓	✓
3	Dokhtar barji bridge of Andimashk	Road and transportation of Khuzestan	Andimashk	3 span bridge lengths (2x22+18)	✓	✓	-	-
4	Looshan entrance bridge	Gilan province general road and transportation department	Gilan-Looshan	Steel box bridge length 45m	✓	✓	✓	-
5	Shariati bridge of Gorgon	Gorgon municipality	Gorgon	Concrete bridge length 60m	✓	-	-	-
6	Ahengar Kala bridge	Mazandaran province general road and transportation department	Mazandaran-Shirgah	3-25m span length bridge	✓	✓	✓	-
7	Sulqan bridge	Tehran province Inqalab Islami housing foundation	Tehran-Kan	One span bridge 25m length	✓	✓	✓	-
8	Fateh bagh bridge of Gorgon	Gorgon municipality	Gorgon	One span steel sheet beam bridge 25m length	✓	✓	-	-
9	Faraman Bridge	Keramanshah province Jihad agriculture	Keramanshah	3 span (40+15)m	✓	✓	-	-
10	Darahrud bridges of Ardabil	Jihad agriculture	Ardabi	Concrete bridge with 3-25m span	✓	✓	-	-
11	Ahmadi long bridge	Jihad agriculture	Hormozgan-Bandar Abbas	Concrete bridge with 3-30m span	✓	✓	-	-
12	Masal bridge in the city	Governor's technical office	Gilan-Masal	Concrete bridge with 4-30m span	✓	✓	✓	✓
13	Darshahi bridge	Road and transportation office	Kahkeloye and Bawir Ahamad-Yasooj	Concrete bridge with 5-30m span	✓	✓	-	-
14	Kohdasht bridge of Lorestan	Jihad agriculture	Lorestan-Kohdasht	Concrete bridge 110m length	✓	✓	-	-
15	Karam sam bridge of Sary	Jihad agriculture	Mazandaran-Sary	One span concrete	✓	✓	✓	-

				bridge 42m length				
16	Lary rudbar bridge of Neka	Housing foundation	Mazandaran- Neka	One span steel bridge length 30m	✓	✓	✓	-
17	Katra Moalem Koh bridge	Jihad agriculture	Mazandaran- Tankabon	3 span concrete bridge	✓	✓	✓	-
18	Yane sar bridge	Ministry of jihad agriculture	Mazandaran- Behshahr	One span steel sheet beam bridge 50m length	✓	✓	✓	-
19	Qalaji bridge of Kermanshah	Keramanshah general road and transportation department	Keramanshah-Pawah	One span truss bridge 45m length	✓	✓	-	-
20	Bridge for passing gas pipe from Ramsar airport runway	Ministry of road and urban development	Ramsar	2.5m span bridge for passing gas pipe	✓	✓		
21	Qal-e Loor bridge of Andimashk	Khuzestan province jihad agriculture	Khuzestan- Andimashk	One span steel sheet beam bridge 50m length	✓	✓	-	✓
22	Soo to Nazaz compound bridges	Jihad agriculture	Kurdestan-Sanandaj	4 different bridge with spans 30m to 50m	✓	✓	-	-
23	Zard Qaba river bridge	Khuzestan general road and transportation department	Ramhormoz	One span steel sheet beam bridge 60m length	✓	✓	-	-
24	Khasraj bridge of Hamidiah	Khuzestan general road and transportation department	Ahwaz	(35+50+35)m	✓	✓	✓	Repair
25	Azizak bridge of Bahenmir	Jihad agriculture	Mazandaran- Behenmir	Compound deck 36m length	✓	✓	-	-
26	Removing phenomenon of Rezwanshahr Tazah Abad bride	Gilan province general road and transportation department	Gilan-Tazah Abad	Reform of path and design of bridge	✓	✓	-	-
27	Sar Aseyab-Chahjam bridge	Khuzestan general road and transportation department	Bagh Malek	One span steel sheet beam bridge 50m length	✓	✓	-	-
28	Raber bridge of Kerman	Ministry of jihad agriculture	Kerman	5 span 20m concrete bridge	✓	✓	-	-
29	Shalman second bridge	Governor's technical office	Gilan-Shelman	Steel arch truss overpass bridge 33m length	✓	✓	-	-

30	Zaidah bridge	Ministry of jihad agriculture	Gilan-Foman	4 span 20m concrete bridge	✓	✓	-	-
31	Moorani bridge	Ministry of jihad agriculture	Lorestan-Poldokhtar	5 span 30m compound bridge	✓	✓	-	-
32	Golgol bridge of Malekshahi	Road and transportation office	Elam-Golgol Malekshahi	Concrete arch bridge 32m length	✓	✓	-	-
33	Safidtoor bridge	Jihad agriculture	Mazandaran-Babol	4 span 20m concrete bridge	✓	✓	✓	-
34	Kaleh bridge	Mazandaran road and transportation department	Mazandaran-Babolsar	Concrete bridge one 24m span two 12m spans	✓	✓	-	✓
35	Babol city bridge	Babol municipality	Mazandaran-Babol	Non-level intersection 280m length	-	-	-	Higher consultant

## 2.1.9 Summary of activities performed in bridge engineering (strengthening of bridges)

No.	Project	Employer	Location		Presented services type			
				Project specification	Phase I	Phase II	Phase III	Higher monitoring
1	Strengthening of Namayeshgah bridge	Tehran city engineering and technical consulting organization	Tehran	Strengthening		✓		
2	Azgol, Gandy and Kurdistan bridges	Tehran city engineering and technical consulting organization	Tehran	Strengthening	✓	✓	✓	✓
3	Karaj Special avenue to Akbatan intersection bridge	Tehran city engineering and technical consulting organization	Tehran	Strengthening	✓	✓	-	-
4	Karaj Special avenue to Gan river intersection bridge	Tehran city engineering and technical consulting organization	Tehran	3 sets of bridges (2x20)m	✓	✓	✓	-
5	Karaj Special avenue to Azadagan belt road intersection bridge	Tehran city engineering and technical consulting organization	Tehran	3 sets of bridges with span (2x20)m	✓	-	-	-
6	Underpass of west east and west of Maidan Azadi	Tehran city engineering and technical consulting organization	Tehran	2 sets of bridges with span 20m	✓	✓	✓	-
7	Individual bridges of Bazft secondary way	Khuzestan province Jihad agriculture	Khuzestan	4 sets of bridges with different spans	✓	✓	✓	-
8	Strengthening of Khasraj-Hamidiah bridge	Department of road and transportation of Khuzestan	Khasraj-Hamidiah	3 span bridges total 115m	✓	✓	-	-

### 2.1.10 Figures of road construction projects



Figure-1 Investigation and design of Mahshahr belt of Khuzestan General Administration of Ports and Shipping (1384)



Figure-2 View of the marking and safety intersection of origin 1, located in the axis of Mahshahr - Ahvaz, Khuzestan Road and transportation (1384)



Figure-3 Repair and improvement of station 0 to 13 km of Ahwaz-Mahshahr path, Khuzestan road and transportation (1385)



Figure-4 Execution operation of the subbase layer of Abadan-Mahshahr axis 10 km length, National Company for Refining and Distribution of Petroleum Products (1386)



Figure-5 Road construction operation of Noor-Baladeh-Tehran axis, Ministry of Road and Transportation of Tehran (1385)



Figure-6 Supervision of Noor-Baladeh-Tehran main road, Tehran Ministry of Roads and Transportation (1385)



Figure-7 Mountaineering operations and preparation of potholes for explosion in station 6+200 km of Yalrud-Sorkhak



Figure-8 Explosive operation at statin 4+800 km of Yalroud-Sorkhak axis, Ministry of Roads and Transportation (1388)



Figure-9 Prepare of materials for construction of two polyethylene pipelines along the passage of site B, Arvand Free Zone, Ahvaz (1388)

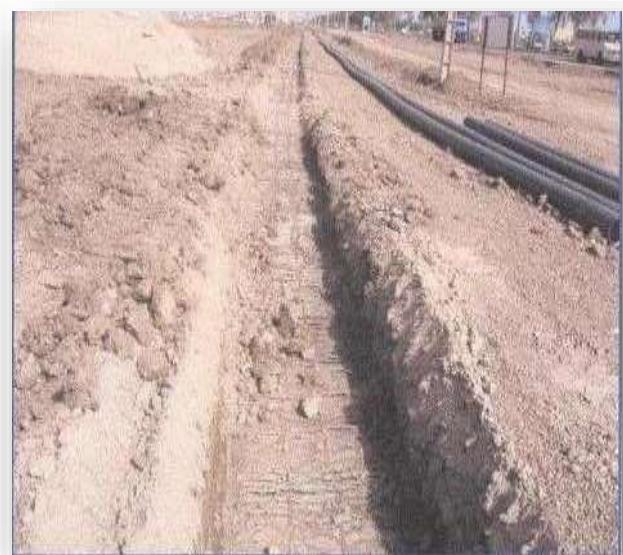


Figure-10 Excavation of polyethylene pipe trench - Site B of Arvand Free Zone (1388)

### 2.1.11 Figures of road construction projects



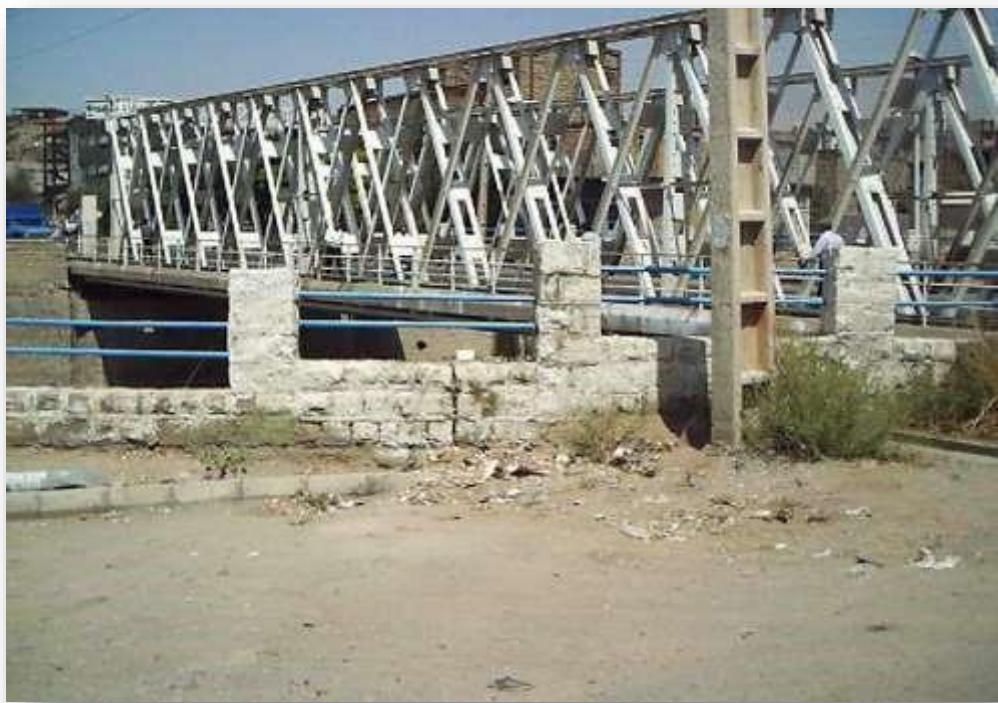
Figures-1 & 2 View of strengthening Khosraj Hamidiyeh bridge before and after improvement operations, Road and Transportation Department of Khuzestan province (1383)



Figure-3 Studies and design of Kerman Rabar Bridge, Kerman Road and Transportation Department (1383)



Figure-4 Studies and design of reinforcement of Amirnan Bridge, General Department of Roads and Transportation of Tehran Province (1385)



Figures-5 & 6 the entrance bridge of Lushan city located in Guilan province, road and transportation of Gilan province (1385)



Figure-7 Reinforcement investigation of Azgol Bridge, Technical and Engineering Consulting Organization of Tehran (1388)



Figure-8 In-site sounding and testing Azgol bridge, Tehran Technical and Engineering Consulting Organization (1388)



Figure-9 Scanning the wall of the Kolah bridge of Modares-Sadr, Technical and Engineering Consulting Organization of Tehran city (1388)



Figure-10 Core testing of Modares deck - Sadr Bridge, Technical and Engineering Consulting Organization of Tehran city (1388)



Figures-11 & 12 Sounding test of International Exhibition bridge located on Chamran Highway, Technical and Engineering Consulting Organization of Tehran city (1389)



Figures-13 & 14 Schematic view of Babolsar fourth bridge

## 2.3- Structure, building and strengthening



### 2.3.1 General

The part of the building that must withstand the loads is called structure. Each building is an objective fact based on the structure, which is considered as a non-independent part, stabilizing and intertwined with it. The ultimate task of any structure system is to transfer loads from the load source to the foundation. The technical and optimal functioning of any system depends on the efficiency of the load transfer flow.

In designing structures, providing conditions of balance, stability, durability and meeting behavioral demands along with technical and economic implementation considerations are considered. Due to the expansion of population and land limitations, the need for construction and height has been inevitable in the present era, which has put the issue of stabilization in the sense of bracing against lateral loading, dynamic and asymmetric at the top of the main concern of civil engineers. In addition, the optimal use of facilities and justifying the design from the point of view of theory, implementation and economics is an important matter that is possible with skills and mastery in calculations, along with the benefit of correct engineering judgment. Structural systems are not limited to the current wealth of human knowledge about construction materials and facilities and are not affected by special local conditions and conditions, but maintain their principles and identity independent of time and place. These systems ultimately belong to the great safety mechanism that man has devised for the struggle for the survival of his fellow human beings, and is primarily the base set of the global universe that governs the movement of galaxies to the motion of molecules.

### 2.3.2 Services available to present in structure, building and strengthening

Design and calculation of various structures with different uses

- Design of special structures such as bridges, silos, reservoirs and underground structures
- Control of capacity and functioning of existing structures
- Design of special surface and deep foundation structures
- Evaluation of static and stability of the mentioned structures and presentation of repairing methods
- Monitoring of routine structures in implementation progress
- Training of common structural analysis and design software
- Strengthening and repair studies of structures
- Design, repair and supervision of infrastructure systems for construction projects
- Short-term training classes on design and calculation of concrete and steel structures

### 2.3.3 Summary of activities performed in structure, building and strengthening

No.	Project	Employer	Location	Presented services type			
				Phase I	Phase II	Phase III	Higher monitoring
1	Supplementary geotechnical investigation and design of foundation strengthening system	Private	Faraidoonk anar	✓	✓		
2	Design, performing the improvement and repair of Tawnir residential building foundation	Now Awaran Tadbir Development and Civil Engineering Company	Tehran-Tehran	✓	✓	✓	✓
3	Design, performing the improvement and repair foundation of Chalow Amol villa	Mr. Arash Maboudi	Chalaw-Amol	✓	✓	✓	✓
4	Sika-Namak Abrud project	Walfajr Mazandaran	Namak Abrud	-	✓	-	-
5	Design of oil reservoirs in Anzali port	Tolo Sepid Baran Company	Gilan-Anzali port	-	✓	-	-
6	Mehr Jawanan Housing	Mehr Youth Cooperative Company	Mazandaran-Babolsar and Mahmood Abad	-	✓	-	-
7	Overflow dam of Babol Shayadeh	Mazandaran and Golestan Regional Water Joint Stock Company	Mazandaran-Babol	-	✓	✓	-
8	Earthquake damaged apartments	Gilan and Zanjan earthquake 69 headquarters	Gilan-Rasht	✓	✓	-	-
9	54-unit housing project - Islamic Revolution Housing Foundation	Mazandaran Province Housing Foundation	Mazandaran-Babol	✓	✓	-	-
10	Amich rubber dam	Mazandaran and Golestan Regional Water Joint Stock Company - Khazarab Consulting Engineers	Mazandaran-Babolsar	✓	✓	-	-
11	Bahnamir and Arabkhel rubber dams	Mazandaran and Golestan Regional Water Joint Stock Company - Khazarab Consulting Engineers	Mazandaran-Babolsar, Bhenmir	✓	✓	-	-

12	Investigating the causes of instability and providing sustainability solutions	Islamic Azad University of Firoozkooh	Tehran-Firoozkoh	✓	✓	-	-
13	Improvement of Imamzadeh Davood canal	Inqalab Islami Housing Foundation of Tehran Province	Tehran-Tehran	✓	✓	-	-
14	Design of Sanbalabad wood factory	Real person	Mazandaran-Babol	✓	✓	-	-
15	Golsar 3 and 4, 45-unit apartment complex	Inqalab Islami Housing Foundation of Gilan	Gilan-Rasht	✓	✓	-	-
16	Guilan University Central Library Development Plan	Jihad University of Gilan University	Gilan-Rasht	✓	✓	-	-
17	Administrative-commercial building of Astan Quds Guilan	Housing Foundation of Gilan province	Gilan	✓	✓	-	-
18	Design of Aliabad building blocks	Housing Foundation of Gilan province	Gilan-Rasht	✓	✓	-	-
19	Bed improvement and reinforcement of Aqsoon residential complex	Real person	Babolsar	✓	✓	-	-

## 2.4- Design Management



## 2.4.1 General

The design manager is a legal person that, relying on receiving the necessary qualifications from the Vice President for Strategic Planning and Oversight within the framework of the contract, and in return for receiving a fee based on it, undertakes to represent the employer within the scope of his transferable duties.

The employer's representation clearly refers to the main feature of the design management service units, hence the employer's agency in the project environment, so the employer can delegate all or parts of the duties assigned to the design management in accordance with the law in the field of project management.

## 2.4.2 Services available to present in project management

- Planning: Precising the goal, selection of implementation method, preparation of initial estimates and preparation of project control leveling plan
- Job referral: referral of explanatory studies, basic and detailed design, supervision and ancillary services
- Management on investigation and design: Determining standards, reviewing and approving the results of design studies
- Management of procurement: construction and installation of supplementary services
- Quality management: providing quality control workflow and ensuring the establishment of a control system
- Time Management: Reviewing, reviewing and updating the overall schedule and detailed schedules
- Cost Management: Making the necessary arrangements to provide liquidity and control the timely allocation of financial resources
- Safety Management: Monitoring the strict performing of general and specific safety guidelines (HSE)
- Contract affairs Management: Preparing the necessary documents for contracting with a consultant and executive factors
- Delivery Management and installation Services: Investigate and perform things for temporary delivery and troubleshooting
- Documentation: Documenting the actions of the design manager and preparing integrated documentation files
- Evaluation and assessment: Evaluating the function of stakeholders during the implementation period and announcing the results to the relevant authorities

- Informing: Ensuring the awareness of relevant institutions and authorities based in the field of the effects of the results of the design from the scope of operations and the nature of activities to the required extent
- Master review and comment on non-transferable duties: Announcement of master opinion on all duties assigned to the highest executive body according to the General Accounting Law and other current laws of the country.

### 2.4.3 Summary of activities performed in project management

No.	Project	Employer	Location	Description
1	Elahieh 13-storey residential building	Private	Tehran	Drainage system, insulation
2	Investigation, design, excavation, supply and transportation of materials and implementation of temporary stabilization system of the pit	Mahestan	Tehran	Excavation project management
3	Execution of wide foundation and septic twin towers 41 storey house to house in Babolsar	Arzesh Afarinan Hoshmand	Babolsar	
4	Satari-Abshanasan underpass and overpass	District 5 municipality	Tehran	Non-level intersection
5	Construction of structural and industrial facilities	Ports and Maritime Organization - Arad Caspian Civil Company	Amirabad Port Special Economic Zone	Construction of oil reservoirs
6	Geotechnical case studies, corrosion assessment of temporary retaining barrier system and concrete mixing plan for foundation of Farokhzadi project	Samen Sazeh Arsh Company	Quds Town-Tehran	Infrastructure project Management (MC)
7	Studies and design of Amol commercial and administrative building stabilization and barrier system	Private	Amol	Guard structure, pit with a height of 22 meters
8	Review and optimization the design of Mehr Housing Foundation	Housing and urban development of Mazandaran	Babolsar - Fereydoun Kenar and Mahmoud Abad	
9	Improving the foundation of Tabriz Cultural and Artistic Hall	Ministry of Culture and Islamic Guidance	Tabriz	
10	Improving and consolidating the foundation of the Sari waste incineration plant project	Sari municipality	Khazarabad - Sari	Design management, design review
11	Improving the foundation of Meraj Qeshm commercial and entertainment complex	Qandis Qeshm Trading Company	Hormozgan, Qeshm Island	Design management and monitoring the implementation of micro-piles (1200 cases implemented)

#### 2.4.4 Figures of design management projects



Figures- 1 & 2 Pictures of Sattari-Abshanasan intersection (1392)



Figure-3 Design Management (MC) Samen Twin Towers Infrastructure (1393)



Figure-4 Implementation of Sari waste incineration plant improvement project (1393)



Figure-5 Schematic view of Meraj Qeshm project (1390)



Figure-6 Micro-pile implementation operation project in Meraj Qeshm (1390)



Figures-7 & 8 Micro-pile implementation operation project in Meraj Qeshm (1390-1391)

**Annexes:****Annex 1. Resume of board of directors****1. Nader Shaebani:**

- CEO and member of directors board
- Bachelor of Structural Engineering (Sharif University of Technology)
- Master of Construction Management (Amirkabir University).

**2. Abolfazl Eslami:**

- Chairman and member of the directors board
- Bachelor of Structural Engineering - Sharif University of Technology
- Master of Soil and Foundation - Amirkabir University of Technology (Tehran Poly Technical)
- PhD in Geotechnics (University of Ottawa, Canada)

**3. Roghayeh Tahmasebizadeh:**

- Member of the Board
- Bachelor of Civil Engineering (University of Mazandaran)

**4. Mohammad Eslami:**

- Member of the directors board
- Master of Structural Engineering (Sharif University)
- PhD in Geotechnics (UCLA, USA)

## Annex 2. Resume of technical colleagues

No.	Name & Family	Education degree	Orientation	Experience	Location of graduation
1	Nader Shaebani	Master of Engineering	Construction Management	32 years	Amirkabir University
2	Abolfazl Eslami	Ph.D. in Engineering	Geotechnics	32 years	Ottawa-Canada
3	Roghayeh Tahmasbizadeh	Bachelor of Engineering	Civil Engineering	33 years	Mazandaran University
4	Khosro Heidari	Bachelor of Engineering	Geology	34 years	University of Tehran
5	Ali Akbar Namdar	Bachelor of Engineering	Mining	31 years	Shahroud University
6	Ali Asghar Eslami	Bachelor of Engineering	Civil Engineering	31 years	Zanjan University
7	Bahira Tavakoli	Bachelor of Engineering	Civil Engineering	18 years	Mazandaran University
8	Mehdi Gholami Ahangaran	Master of Engineering	Soil and Foundation	17 years	University of Guilan
9	Masoud Abolghasemi	Bachelor of Engineering	Civil Engineering	16 years	Mazandaran University
10	Saeed Parnian	Bachelor of Engineering	Surveying	18 years	Khajeh Nasir Toosi University
11	Farshad Jafarzadeh	Master of Engineering	Geotechnics	17 years	Amirkabir University
12	Ebrahim Shojaei	Ph.D. in Engineering	Geotechnics	8 years	Amirkabir University
13	Farzaneh Andalibi	Master of Engineering	Architecture	13 years	Shahid Beheshti University
14	Mohammad Eslami	Ph.D. in Engineering	Geotechnics	10 years	UCLA-USA
15	Ataollah Jafari	Ph.D. in Engineering	Geotechnics	8 years	University of Isfahan
16	Ali Tajrishi	Bachelor of Engineering	Civil Engineering	10 years	Azad University
17	Amirhossein Ebrahimipour	Master of Engineering	Geotechnics	5 years	Amirkabir University
18	Donya Afshar	Master of Engineering	Geotechnics	3 years	Amirkabir University

- Key Colleagues



Nader Shaebani



Abolfazl Eslami



Roghayeh Tahmasbizadeh



Mehdi Gholami Ahangaran



Masoud Abolghasemi



Mohammad Eslami



Ibrahim Shojaei



Mina Malekiha



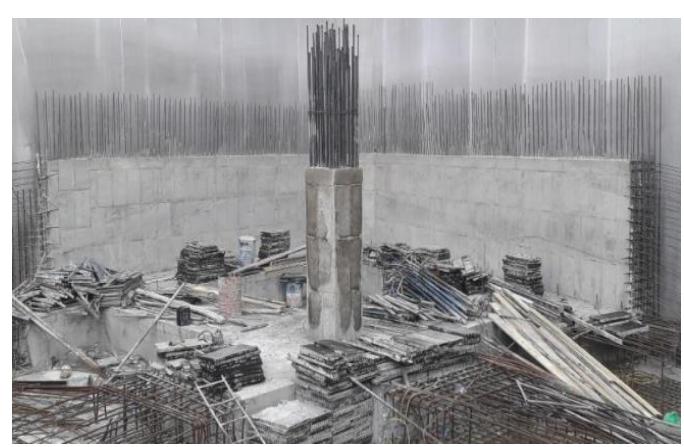
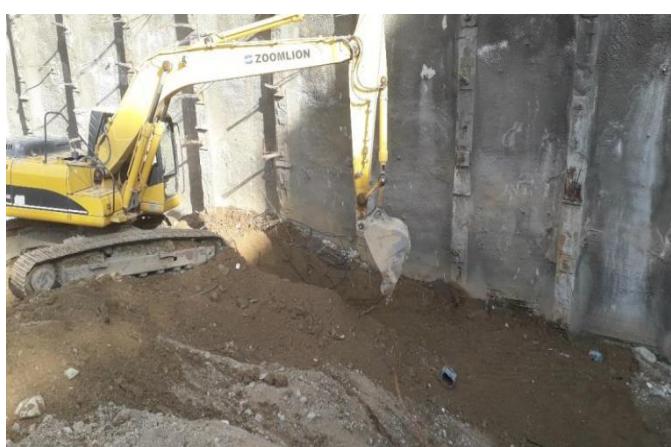
Farzaneh Andalibi

### Annex 3. Recent Technical Reports (year of 2022)

Project	Client	Report
5000 tons of Methanol storage tanks	Fanavaran Petro Olefin Co.	Analysis and optimization design of drilled piles
Technical and engineering services and construction studies and providing design patterns to stabilize and stabilize the factory site	Guilan Sabz Cement Co.	Geotechnical studies and services Drainage studies and surface runoff collection Improvement studies report of deep mixing in phase 2 of the factory site Studies of the depots condition Executive plans, design and stabilization of the factory site
Geotechnical studies of Najmabad industrial town	Alborz Province Industrial Towns Company	Geophysics, Hydrology, MASW and Geoelectric report
5000 tons Oil storage tanks	Gonche Co.	Pile Integrity Test (PIT) report Specialized geotechnical studies and providing geotechnical engineering services Geotechnical supplementary studies and tank foundation design
Farahzadi commercial and administrative complex	Samen Sazeh Arsh Co.	Nails testing report of stabilization operation project of Tehran's twin towers pit Consolidation and stabilization operation of Farahzadi commercial and administrative complex report Consolidation and stabilization operation supplementary geotechnical operations on the eastern side, northern side, and additional section Corrosion evaluation report of the temporary buffer pit system of the Twin Tower
Stabilization and implementation of the guard structure of the Post Bank building	Post Bank	Design calculation report of pit temporary stabilization system

## Annex 4. Illustrations of some considerable projects

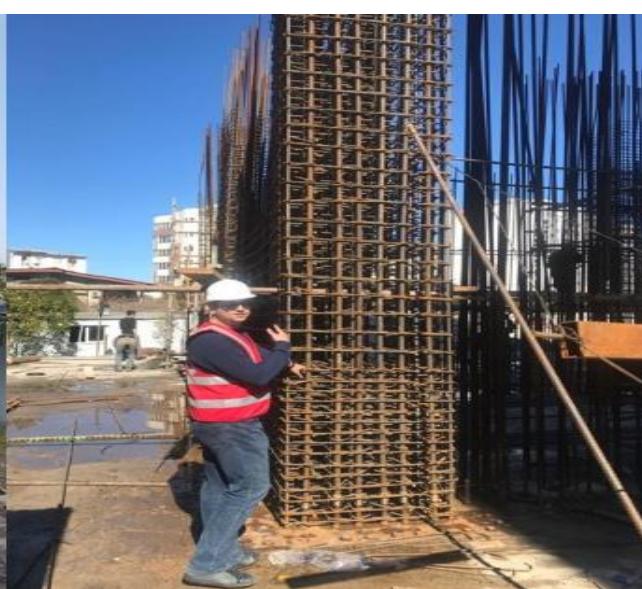
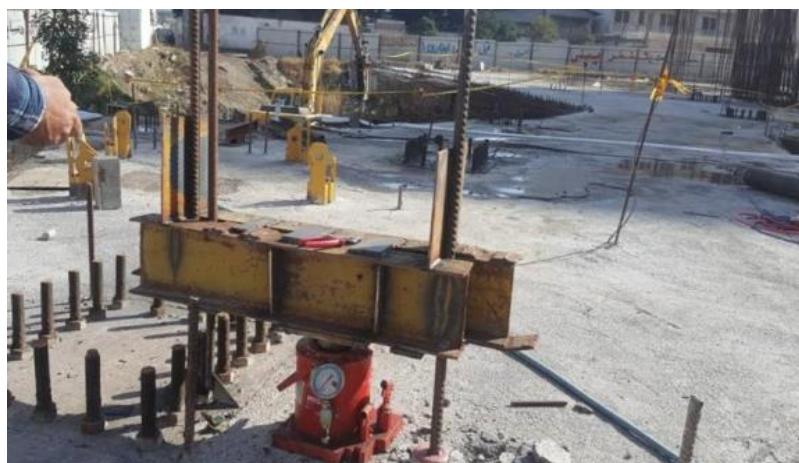
- **Stabilization of excavation of CFT Hotel**



- **5000 tons Oil storage tanks of Ghonche Co.**



- Sky Palace Twin Tower Babolsar



- Amirabad port, Caspian Co. Tank Farms

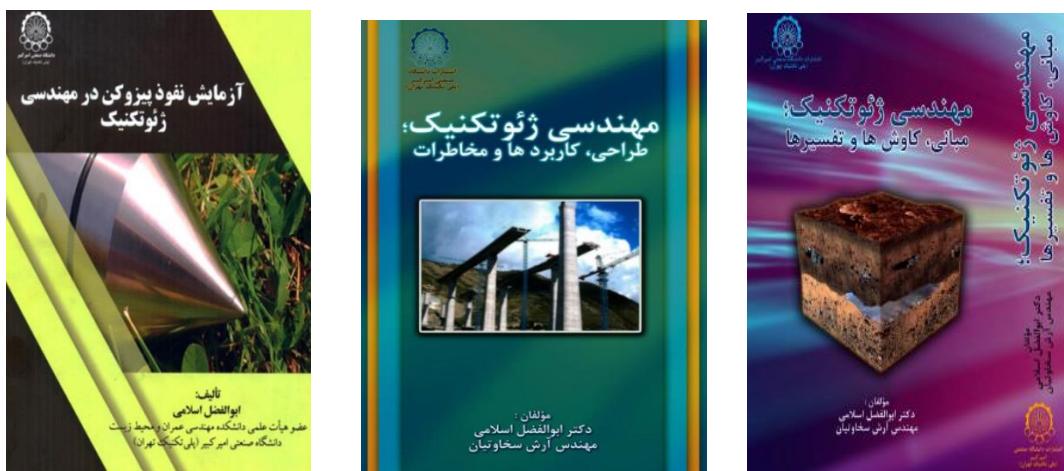


- **Guilan Cement Factory**



## Annex 5. Publication and compilations

- 1- Eslami, A. 2005. Foundation Engineering: Design & Construction. Building and Housing Research Center, BHRC. No. B-437,4th Edition.
- 2- Fakharian, K. Eslami, A, 2006. Axial Bearing Capacity of Piles. Ministry of Roads and Transportation deputy of education research and technology transportation research institute.
- 3- Eslami, A. Ranjbar, M. Riazi, T. and Veiskarami, M., 2006. Mat Foundation: Analysis, Design & Performance. Guilan University Press.
- 4- Eslami, A. and Sekhavatian, A, 2013. Geotechnical Engineering: Principles, Investigations and Interpretations. Amirkabir University Press.
- 5- Eslami, A. and Sekhavatian, A, 2013. Geotechnical Engineering: Design Application and Hazards. Amirkabir University Press.
- 6- Eslami, A. et al., 2016. Drilled Shafts: Construction Procedures and LRFD Design Methods, (Translated in Farsi), Naghoos Press.
- 7- Eslami, A, 2023. Bridge Escape: The Art of Designing Bridges, (Translated in Farsi).



## Annex 6. Ranking

۵۷۵۳۴۶	نامه	 بیانت معموری سازمان برنامه و پروژه کشور
۱۳۹۸/۱۰/۰۸	تاریخ	

**گواهینامه صلاحیت خدمات مشاوره**

جناب آقای نادر شعبانی  
مدیر عامل محترم شرکت مهندسین مشاور شالوده‌های مقاوم عمران  
شماره ثبت: ۱۵۸۶۸۸

با استناد به مصوبه شماره ۱۲۸۲/۴/۲۲ هد مورخ ۱۲۸۲/۰۷/۰۷ همایت محترم وزیران و با توجه به احراز شرایط لازم و تایید صلاحیت آن شرکت در سامانه جامع تشخیص صلاحیت عوامل نظام فنی اجرایی، به این وسیله صلاحیت آن شرکت برای لیجام خدمات مشاوره از تاریخ صدور این گواهی‌نامه تا پایان دوره ارزشیابی و حد اکثر تا تاریخ ۱۴۰۲/۱۰/۰۸ اعلام می‌گردد.

**شناسه ملی شرکت: ۱۰۱۰۲۰۱۳۹۱۶**

**مقتضی است برای مشاهده جزئیات گواهینامه صادره به پایگاه**  
**مراجعه فرمایید.** <https://sajar.mpor.org.ir>

رعایت قانون برگزاری مناقصات، موضوع ابلاغیه شماره ۱۳۰۸۹۰ مورخ ۱۲۸۳/۱۱/۱۷ رئیس مجلس شورای اسلامی، این نامه‌های اجرایی مربوطه و ظرفیت کاری مجاز در زمان ارجاع کار توسط آن شرکت ضروری است.

سید جواد قائم فر  
رئیس امور نظام فنی اجرایی، مشاورین و پیمانکاران

- هرگونه تغییر در ارکان و سهام شرکت و اطلاعات انتشار آوران ( مدیر عامل، هیأت مدیره و کارکنان انتشار آور )، باید حدائقه ظرف مدت سه ماه در سامانه ساجات (<https://sajar.mpor.org.ir>) ثبت و ارسال شود.
- هر قرارداد جدید حدائقه ظرف مدت سه ماه پس از اتفاق افرازیاد و صورت وضیعت‌های جدید پس از تایید کارقرما باید در سامانه ساجات ثبت شود تا انتشار آنها حدگام تشخیص صلاحیت دوره بعد و ارزشیابی ظرفیت منظور شود.
- در صورت مغایرت مطالب این گواهینامه با اطلاعات موجود در پایگاه <https://sajar.mpor.org.ir> اطلاعات پایگاه اصلت دارد.

به صفحه گواهینامه توجه فرمایید

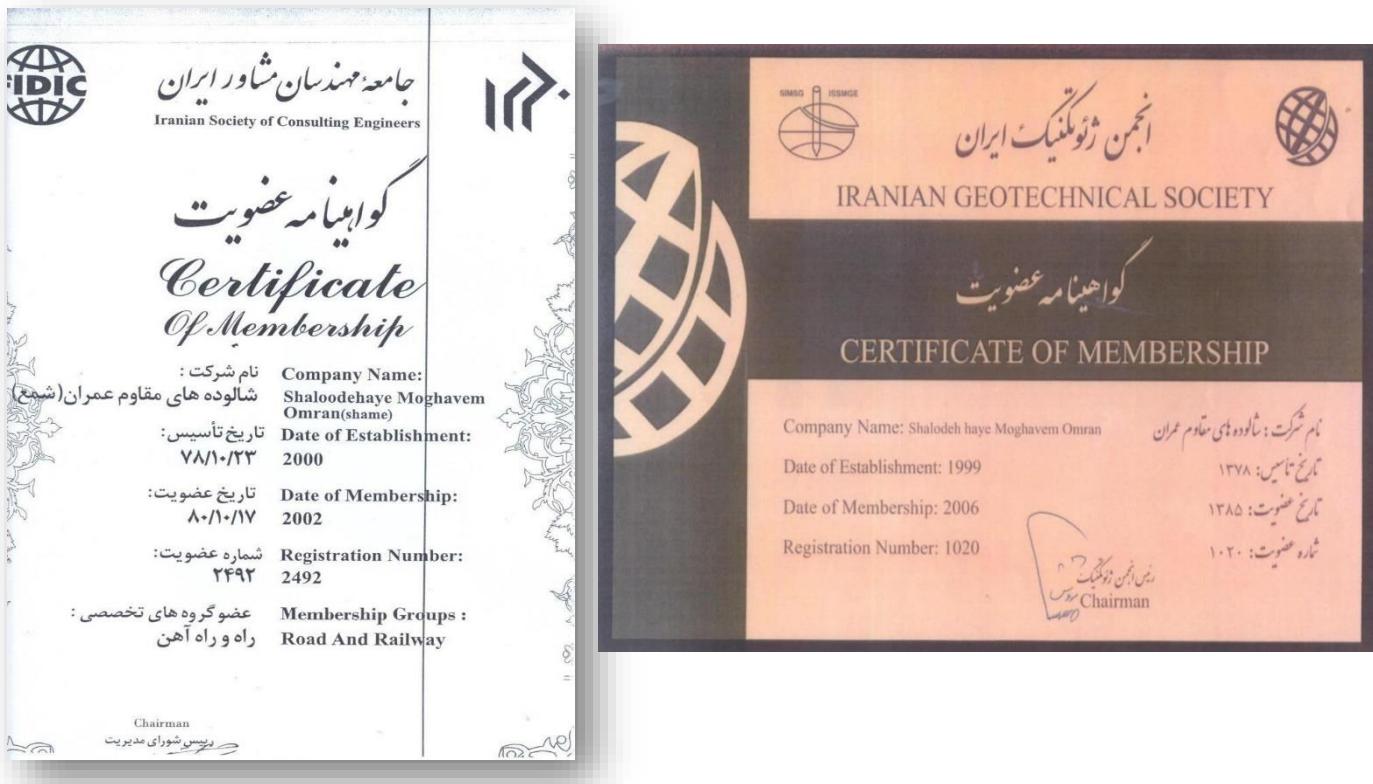
شماره: ۲۷۷۷۶۴

## Annex 7. ISO certificate



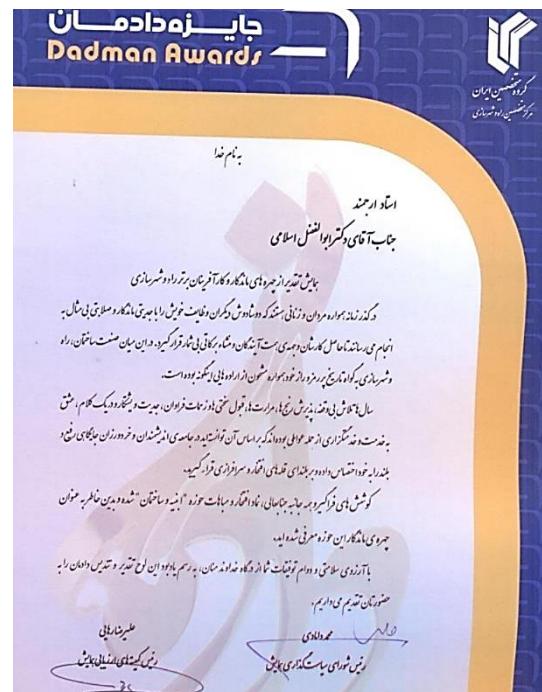
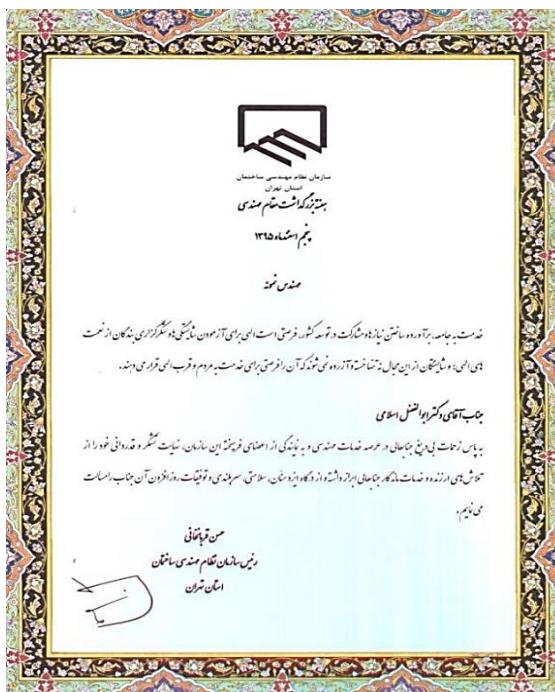
## Annex 8. Membership in professional association

1. Membership in Iranian Consulting Engineers Society
2. Membership in Iranian Geotechnical Society (IGS)
3. Membership in International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE)
4. Membership in Science committee of Iranian national construction regulation office
5. Membership in Science committee of Iranian Housing and construction studies center



## **Annex 9. Awards and achievements**

- Appreciation support certificate from one day seminar of the new observation on design and implementation of deep foundations by Iran geotechnical association
  - Selection of the board of director member as the national superior engineer by the Iran structure and construction association
  - Selection of the board of director member as the paragon civil engineer by the Tehran province building engineering system organization
  - Selection of the board of director member as the memorable face of year 1395 in field of structure and building (by memorable faces foundation-Shahid Dadman award)



## Annex 10. Holding the scientific and specialized workshops

- Holding foundation and foundation construction training:
  - The training hold in Elam, Semnan, Khuzestan, Sistan and Balochestan, Guilan, East Azerbaijan, West Azerbaijan and Qom in years 1377 to 1380, National Building Regulations compilation and promotion department-Ministry of housing and urban development
- Holding practical training in seismic pathology of foundations and methods of improvement:
  - The first international conference of seismic strengthening, Tehran, 1385
- Holding the training of geotechnical and excavation:
  - Engineering regulation of Golestan province, 1385
- Holding the training of deep foundations-Tehran:
  - Building and housing research center, Iran, 1384
- Holding the trainings:
  - Technical structure, bridge design and construction, preparing as built drawings according to design drawings, geotechnical and soil mechanic laboratory, sections and specifications of bridges, foundation construction, piling, pile driving and other trainings in years 1379-1387, Ministry of road and transportation training center, Tehran, Iran
  - Holding practical training of deep and semi-deep foundation, Iranian geotechnical society and Engineering regulation of Golestan province, 1388
  - Holding practical training of observation in analyze and design of deep foundations, Kiankar company and Engineering regulation of Khuzestan, 1388
  - Holding practical training of deep foundation (pile), optimum design by the result of on-site and static-dynamic tests, Iranian geotechnical and soil mechanic international conference, Tehran 1389

## **Annex 11. Sponsorship of seminars and technical events**

- 6<sup>th</sup> Civil Engineering International Conference by Esfahan University of Technology (IUT)
- 3<sup>rd</sup> Conference of Civil Engineers in Mazandaran “Investigating the effects of adjacent buildings construction”, 2017.
- “Foundation System for Tall Buildings” Seminar in Mazandaran, 2022.

## **Annex 12. Facilities and equipment**

### A) Company offices:

1. Central office: Tehran, Shahid Bheshti avenue, Shahid Sabonchy avenue, 10<sup>th</sup> alley, No 5
2. Central laboratory: Tehran, Yosuf Abad Salmas square, 6/1 alley, No 69
3. South office: Ahwaz, Keyanpars, Phase II, 20<sup>th</sup> west alley, Arya building 5, unit 7
4. Abadan monitoring office: Abadan, Amir Kabir avenue, sub avenue 8, Parsa complex, unit 1, First floor
5. North offices:
  - Gilan, Rasht, Moalem avenue beside governor office, Vahdat alley, 7<sup>th</sup> alley, No 10
  - Mazandaran, Sary, Farhang avenue, Mofid alley, second dead-end, Yaqt building 2, unit 1
6. West office:
  - Ardabil, Shohada highway, before Hafiz square, in front of Azadi Park, No 151
  - West Azerbaijan, Aromeyah, Azadagan boulevard, Golbaran avenue, No 17

## B) Special equipment (geotechnical and soil mechanics)

- Three Mobile Drill rigs, capable of drilling up to 200 meters in rock and alluvium, Shelby tube sampling, core drilling, and SPT
- A ZIF-200 skidding drilling rig
- Two Craelius D750 skidding drilling rigs
- Drilling equipment including Rod, Casing, Core barrel, chisel and other apparatus for drilling up to 400 meters in rock and soil
- Four series of laboratory equipment for performing basic soil and index, compaction, rigidity, resistance, physical and chemical tests
- Two series of testing equipment for materials quality control, including Fresh and Hardened concrete, asphalt, and welding
- Equipment for In-site testing (such as PLT, PMT, CPT, SPT, VST) and in-site permeability test (Lefranc and Lugeon), static pile loading, etc.

## C) Software

- UNIPILE
- MPILE
- ALLPILE
- GLRWEAP
- UNICONE
- PLAXIS 2D & 3D
- FEADAM
- MAT3D & FOUNDATION 3D
- GEOSLOPE
- SAFE2000
- CAPWAP
- GRLWEAP
- UNITEST
- PROSHAKE
- DIADIM
- CSDP
- SDRMAP
- SAP
- ETABS
- ABAQUS