From Concept to Creation...
Boland Payeh Co.

In 1992, Boland Payeh started by utilizing newest technologies and construction methods to design and construct Shahid Montazeri Power Plant Cooling Towers as Iran's first ever concrete cooling towers.

Boland Payeh continued as one of the main general contractors in Iran and has completed projects in various sectors at international level. Milad Multi-Purpose Telecommunication Tower, world's 6th tallest tower, is one of Boland Payeh's significant projects.

Boland Payeh is known for its unique projects mainly on EPC basis. Due to this reputation, company was able to successfully attract financiers and has signed EPCF, BOO and BOT agreements.

In 2008, Boland Payeh and Tehran Metro signed a barter contract in which, Boland Payeh agreed to design and construct parts of lines 3, 4 and 6 of Tehran metro. Lines 3 and 4 are currently open to public.

Fields of Activity:

- Oil, Gas and Petrochemical
- Power and Water
- Industrial Factories
- Transportation (Roads, Railways, Metro)
- Hydraulic Structures
- Building and Civil Structures
- Bridge, Tunnel, Jetty
- High Rise Structures
- Sport Facilities

Grades, obtained from Management & Planning Organization of Iran:

- First Grade in the field of Mine & Industry
- First Grade in the field of Power
- First Grade in the field of Water
- First Grade in the field of Construction and Building
- First Grade in the field of Installations & Equipment
- First Grade in the field of Road & Transportation
Construction Method

In urban tunneling, various methods have been widely used during years such as New Austrian Tunneling Method (NATM), Cut-and-Cover Method, and the methods which have been formed on using Tunnel Boring Machines (TBM).

Among the above methods, both Cut-and-Cover and NATMs are possible and optimal options especially if shallow overburden and favorable geology conditions exist. However, while Running Tunnels are often built using a TBM or NATM, the Cut-and-Cover technique is common worldwide today for Station Tunnels.

So, as one of the most common method, Boland Payeh has used the NATM to construct the Running Tunnels of Metro Lines 3 and 4 of Tehran City. This method describes requirements of design and construction of modern tunnels and integrates the principles of rock masses behavior under load and monitoring the performance of underground construction.

The main advantage of the NATM is providing an optimized support based on observed ground conditions while this method lies in its slower tunneling rate compare to mechanized tunneling method using TBM. However, Boland Payeh engineers found a solution to NATM’s slow tunneling rate utilizing the Parallel Formworks and special concrete mixture design resulting in substantial increase in the average magnitude of daily tunneling.

To build the stations, since the conventional Cut-and-Cover Method entails some difficulties in urban areas especially resulted from surface interruptions, Boland Payeh engineers utilized this method combined with Rib-and-Pile Method to construct the Station Tunnels of Lines 3 and 4. In this method, an access way is excavated to the desired underground level; then, three galleries are usually excavated and supporting piles and ribs are executed to form the temporary support system. As mentioned above, one of the advantages of this method is preventing traffic problems in the surface ground streets. The Cut-and-Cover and Pile-Rib methods were used to construct the Station Tunnel parts including Ticket Halls, Passenger Platforms, Access Staircases, and Electrical Equipment Rooms.
Tehran Subway
Lines 3 & 4

Client: Tehran Urban and Suburban Railway Company
Consultant: Gueno Consulting Engineers / Pajoohesh Consulting Engineers
Location: Tehran, Iran
Contractor: Boland Payeh Co.
Contractor's Consultant: Tarh-va-Tosee Boland Payeh Consulting Engineers

Engineering, procurement, construction and finance of Tehran Metro, with an initial price of 295,000,000 Euros, was awarded to Boland Payeh. This project consists of construction of 14 km of tunnel, 14 stations, 8 ventilators, 14 km of rail tracking and 2 connecting structure between lines.
Boland Payeh was responsible for design and construction of this project. All the engineering phases and construction stages have been carried out according to international standards.
**Station: W3**
Location: Aghdasiye 3-way
Underground station with 2 ticket halls

**Station: D3L7**
Location: Molfavi – Valiasr junction
Underground- interchange station

**Station: V3**
Location: Sayad-Shirazi highway and Nobonyad square
Underground station with integrated ticket hall- Side platforms

**Station: U3**
Location: Sayad-Shirazi highway – Moghan St.
Underground station with ticket hall in street level- Side platforms
Line 3 of Tehran Metro was the main priority of Tehran Metro with 37 km length and 26 stations. This line connect southeast and northwest of Tehran by passing through some of the most congested areas of Tehran including Valiasr St, Rah Ahan Square and Shahid Beheshti St.

Station: X3  
Location: Shahid Mahalati  
Underground station with integrated ticket hall- Side platforms

Station: Y3  
Location: Qaem Square  
Underground station with integrated ticket hall- Side platforms
Line 3 of Tehran Metro was the main priority of Tehran Metro with 37 km length and 26 stations. This line connect southeast and northwest of Tehran by passing through some of the most congested areas of Tehran including Valiasr St, Rah Ahan Square and Shahid Beheshti St.

**Station: X3**
Location: Shahid Mahalati
Underground station with integrated ticket hall- Side platforms

**Station: Y3**
Location: Qaem Square
Underground station with integrated ticket hall- Side platforms
Niavaran station complex

8 ventilators and emergency exits:
- V3W3 ventilator and emergency exit
- U3V3 ventilator and emergency exit
- W3X3 ventilator and emergency exit
- X3Y3 ventilator and emergency exit
- P3Q3 ventilator and emergency exit
- M3N3 ventilator and emergency exit
- I3K3 ventilator and emergency exit
- A3A3-1 ventilator and emergency exit
**Station: P3**
Location: Shahid Beheshty – Imam Khomeini junction
Underground station with integrated ticket hall- Side platforms

**Station: G3**
Location: Valiasr – Imam Khomeini Junction
Underground station with integrated ticket hall- Side platforms

**Station: A3**
Location: Javane square
Underground station with integrated ticket hall- Side platforms
Preliminary studies of northern part of line 3 from Nobonyad Square to Tajrish Square are underway by Boland Payeh Co. This 6 km route will include 5 stations and 5 ventilators.
Line 4 was one of the main priorities of Tehran Metro and connects east part of Tehran to Mehrabad Airport through city center. The scope was the following locations and their connecting routes:

- Terminal 6 of Mehrabad Airport
- Terminal 1 of Mehrabad Airport
- Mehrabad Airport 3-way junction
- Bime and Karaj highway junction
- Ekbatan metro terminal (West end of Line 4)
- Shahid Kolahdooz metro terminal (East end of line 4)
Station B4
Two underground station with integrated ticket hall- Side platforms

Station A4-2
Location: Bimeh St.
Exchange station- Two underground level

Station Terminal 1 of Mehrabad Airport
Location: Entrance of Mehrabad Airport
One underground level- island platform
Currently, the preliminary study of line 8 of Tehran Metro and north-west extension to Line 3 are underway by Boland Payeh Co.
Station: Terminal 2 of Mehrabad airport
Location: In front of Terminal 2 of Mehrabad airport
Underground exchange station – island Platform

Station: Terminal 3 of Mehrabad airport
Location: in front of Pilgrims Terminal
Two underground station – island platforms

Line 4 of Tehran Metro includes two ventilators and 5.2 km of tunneling.
Tehran Subway

Rail Tracks

Ready for operation
Executives Stages of Tunneling

Excavation

Lining of Tunnel
Tehran Subway

Platform construction

Completed platform
Ticket hall excavation

Ticket Hall Construction
LINE 03

Tehran Subway
Opening of Line 3 of Tehran Metro by Iranian President, Dr. Hassan Rouhani

On September 2015, remaining 18 km of line 3 of Tehran metro was opened to public.
The opening ceremony was held in Nobonyad and Qaem stations with the presence of President Rouhani, Minister of Internal Affairs, Minister of Justice, Tehran Mayor, CEO of Tehran Urban & Suburban Railway Co., Governor of Tehran Province and their teams. Boland Payeh’s Chairman of the Board, Mr. Khajavi, was also present who gave a brief explanation on the works undertaken by BP.
Opening of Line 3 of Tehran Metro by Iranian President, Dr. Hassan Rouhani
LINE 03

Tehran Subway
Our Collaborators