CIVIL CONSTRUCTION

CONTENTS

Civil Construction

providing engineering and technical services through contractual, design, and construction arrangements in the following fields:

1. Constructing, commissioning, and operating large producing, industrial, and mine complexes;
2. Dam construction and implementation of irrigation and watershed systems, water pipeline, and offshore structures;
3. Road, bridge, and tunnel construction;
4. Construction of metal and concrete building;
5. Establishment of residential towns and mass constructionworks;
6. Establishment of electricity grid networks and high-voltage posts; and
7. Establishment of oil and gas refineries and gas pipelines.

We are prepared to take part in industrial improvement, renewal, and development of our homeland (Iran) and also ready to export our technical and engineering services to other countries.

High capability of our workforces and a wide range of types of machinery and equipment has given us the capacity to undertake several and variant projects in different fields and deliver the results with acceptable quality and pace. Our successful record has brought us a good reputation and credit among the clients. Our company has concluded contracts in infrastructural fields with the Ministry of Power, Ministry of Oil, Ministry of Roads and Urbanism, Tehran Municipality, Social Security Org. and other Iranian Organizations. The company has achieved the highest ranking that Iran State Programming and Management Org. and Ministry of Road and Urbanism would give to a company in the abovementioned field:

- 1st-grade contractor in industry and minefields
- 1st-grade contractor in water management fields
- 1st-grade contractor in road and transportation fields
- 1st-grade contractor in structures and equipment fields
- 1st-grade contractor in installations and facility fields
- 1st-grade contractor in mass construction management fields
- 2nd-grade contractor in oil and gas field
- 3rd-grade contractor in the power field
- 2nd-grade contractor in design and construction (EPC) building and structure field
- 2nd-grade consulting competence certificate for residential, commercial, administrative, and industrial structures fields.

Our valuable experiences along with high executive potential, experienced workforce, equipment, pieces of machinery, and financial capabilities have made us a good candidate for carrying out EPC projects. The company is prepared to enter a joint venture with Iranian and foreign companies for carrying out national and international projects. In this regard, the projects shall be carried out as per the regulations and the requirements of Iran State Programming and Management Org.

The company has taken steps toward the realization of Total Quality Management (TQM) goals and tries to meet the expectations of the stakeholders by implementing the EGQM model and establishment of managerial systems. The company has received an extended IMS certificate from DQS-Germany, IQNet, and other institutes along with other standards as follows:

- Quality management system (ISO 9001)
- Environment management system (ISO 14001)
- Occupational safety and health system (ISO 45001)
- Customer relationships and complaint management system (ISO 10002)
- Risk management system (ISO 31000)
- Project management system (ISO 21500 and PMBOK)
- EFQM and five-start letter of honor from IQNet
- Products quality standard certificated from Iran National Standard Org.
- Winning the first place in engineering and technical services in 500 top Iranian companies ranking

In line with the development objectives of the country and following the policies, We try to play an active role in building the country based on the standards and add dynamism in its executive structure. We try to satisfy our clients by providing quality services in the shortest possible time with competitive prices. Besides, the company tries to increase the productivity of its employees by improving their technical knowledge and empowering the employees to take part in decision making and implementation. Moreover, our Research and Development (R&D) activities are focused on innovative construction methods and gaining a larger market share.

dikes and dams, execution of irrigation and drainage networks

The group winning the Grade 1 proficiency in the discipline of the dams and dependent facilities, managed to conclude several major contracts with the ministry of energy, to the implementation of the water diversion tunnels in concrete and soil.









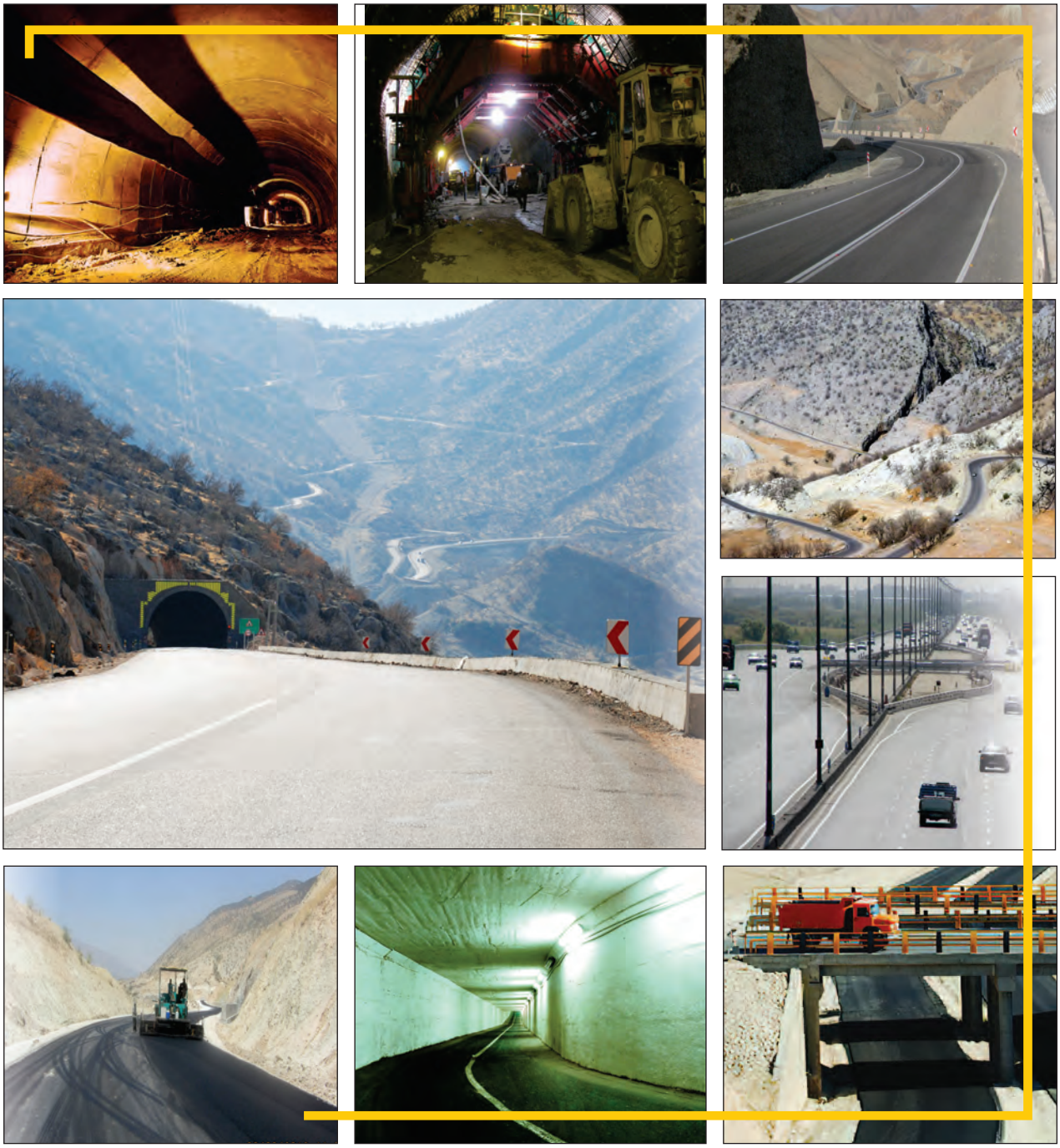
OWNER : EAST AZARBAYJAN REGIONAL WATER CO.
CONSULTANT : MAHAB GHODSS CONSULTING ENGINEERS
CONTRACTOR : TAMIN RAH

Bridge construction

Given the grade 1 of the competence and suitability as a contractor in the discipline "road and transportation", the company was brilliant in the execution of construction projects of highways, bridges and heavy buildings.

Road Construction

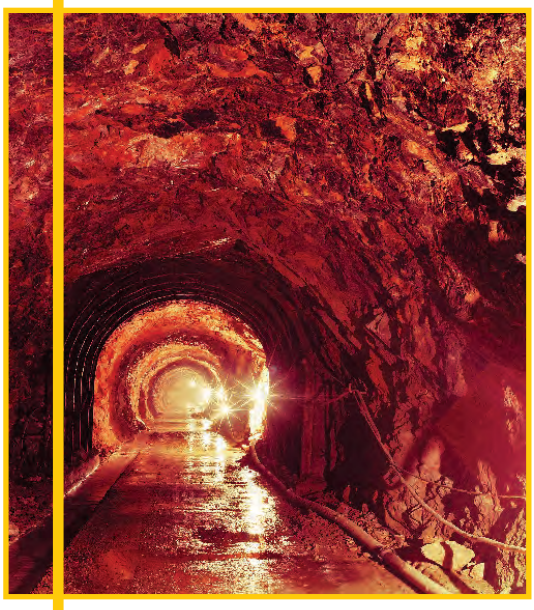
Executive experience and work history of the company is widely recognized in the industry. The company benefits first grade of competence and ability as a contractor in the discipline "road transport", the grade established by the department of planning and strategic control of the Presidency of the Republic of Iran. The company has already implemented several projects and many others are running.



Drilling and tunnel

Executive experience and work history of the company is widely recognized in the industry. The company benefits first grade of competence and ability as an entrepreneur in this field. The company has already implemented several projects and many others are running.



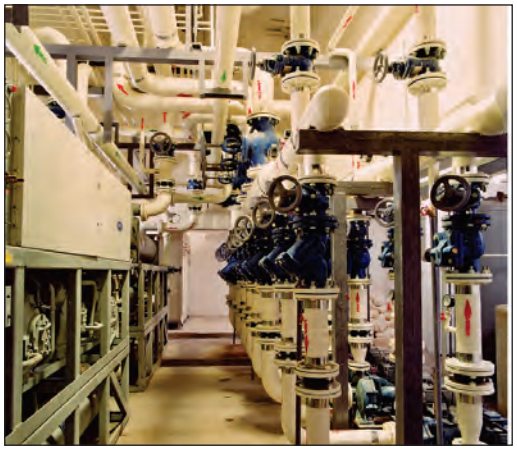


large concrete and metal structures

The resources of the company in terms of experienced engineers and machinery and equipment in the construction field offered the first grade of competency and ability as a contractor in this area.





Construction of social housing and residential complexes

Having the highest degree of competence of contractor in the construction of housing and residential complexes, gave rise to run several projects in his sector.








پام سبز
اقامتی
خدماتی
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Prefabricated Houses Products

Prefabricated houses Products are designed to be used for various applications including residence, military, workshop, offices recreation, etc. in different sizes and dimensions. Another advantage of our products is that we use high-quality raw material with proper weight and high endurance. As a result, we can provide a one-year guarantee and five-year after-sales services. We are prepared to receive your orders, implement your ideas in our designs, and produce your intended products based on your preferred dimensions and quality in the shortest time possible.

our products categorize in three different types:

1- Villa, residential, office, workshop prefabricated houses.

2- Crisis Center prefabricated houses.

3- Caravan prefabricated houses.

Villa Prefabricated Houses

Technical Specifications:

• Dimensions: Length: 10 m, Width: 6 m, Functional Height of each Floor:2.5 m
• Total Weight: 15000Kg
• Structure: Standard Steel Studs and Profiles and Formed Sheets
• Body: Embossed Sandwich Panel
• Flooring: Parquet, Ceramic or other High-Quality Flooring
• Ceiling: Ceiling Sandwich Panel
• Doors and Windows: UPVC Double Glazed Windows; First-class
• Colored Aluminum Profile
• Electrical System: Entrance Door with Double Glazed Windows; HDF Internal Doors Surface
• Wiring; 220V
• Air Conditioning System: A++ Heating/Cooling Split AC system
• Installations: Hot/Cold Water Piping

Complementary Explanations:

• Application: Villa, Residence, Office, Conference Hall, Dormitory
• Advantages: Foundation-less Installation, Simple Loading, and Carriage, A Variety of designs,
• Colors and Materials, Modular Extension of Length and Width, One to Three Floors
• Plans are designed based on the client's request.

office prefabricated houses

Technical Specifications:

• Dimensions: Length: 12 m, Width: 9 m, Functional Height of each Floor: 2.45 m

• Total Weight: 9,000 Kg

• Structure: Standard Steel Studs and Profiles and Formed Sheets Body: Embossed Sandwich Panel

• Flooring: Parquet, Ceramic or other High-Quality Flooring

• Ceiling: 5cm En-bloc Embossed Sandwich Panel; 5cm Sandwich Panel Sheet; 0.55 mm Shadow-line Galvanized Sheet

• Doors and Windows: UPVC Double Glazed Windows; First-class Colored Aluminum Profile

• Entrance Door with Double Glazed Windows; HDF Internal Doors Electrical System: Surface Wiring; 220V

• Air Conditioning System: A++ Heating/Cooling Split AC system Joining: Three 3x12 Prefabricated Constructions are joint in less than two hours

Complementary Explanations:

• Application: Villa, Residence, Office, Conference Hall, Dormitory

• Advantages: Foundation-less Installation, Simple Loading, and Carriage, A Variety of designs,

• Colors and Materials, Modular Extension of Length and Width, One to Two Floors

• Plans are designed based on the client's request.

Residential Prefabricated Houses

Technical Specifications

• Dimensions: Length: 12 m, Width: 3 m, Functional Height of each Floor: 2.45 m

• Total Weight: 3,000 Kg

• Structure: Standard Steel Studs and Profiles and Formed Sheets Body:

Exterior layer is covered by colored galvanized sheets; the middle layer is filled by Polystyrene sheet and the interior design is covered by PVC sheets. Flooring: Parquet, Ceramic or other High-Quality Flooring Ceiling: 5 cm En-bloc Embossed Sandwich Panel; 5 cm Sandwich Panel Sheet; 0.55 mm Shadow-line Galvanized Sheet

• Doors and Windows: UPVC Double Glazed Windows; First-class • Colored Aluminum Profile

• Entrance Door with Double Glazed Windows; HDF Internal Doors Electrical System: 220V Surface Wiring

• Air Conditioning System: A++ Heating/Cooling Split AC system

Complementary Explanations:

• Application: Temporary Working Camps, Residence, Office, Conference Hall, Security, Dormitory

• Advantages: Foundation-less Installation, Simple Loading, and Carriage, Variety of Colors and Material, Modular Extension of Length and Width, One or Two Floors Plans are designed based on the client's request.

Workshop Prefabricated Houses

Technical Specifications

• Dimensions: Length: 8 m, Width: 3 m, Functional Height of each Floor: 2.60 m

• Total Weight: 4,500 Kg

• Structure: Standard Steel Studs and Profiles and Formed Sheets Body: Exterior layer is covered by Shadow-line Galvanized Sheet and the Interior layer is covered by 16 mm MDF with proper insulation.

• Flooring: 18 mm Multi-Layer Wooden Sheets with First Class Flooring

• Ceiling: 4 cm Ceiling Sandwich Panel with Polyurethane Insulation (Density 4Kg/M³)

• Doors and Windows: UPVC Double Glazed Windows; First-class Colored Aluminum Profile

• Entrance Door with Double Glazed Windows; Electrical System: 220V Surface Wiring

• Air Conditioning System: A++ Heating/Cooling Split AC system

Complementary Explanations:

• Application: Temporary Working Camps, Residence, Office, Conference Hall, Security, Dormitory

• Advantages: Foundation-less Installation, Simple Loading, and Carriage, A Variety of Designs,

• Colors and Materials, Simple Movement, High - Strength Structure Safe Movement and Drag utilizing Designed Beams under the Construction.

Crisis Center

Technical Specifications

• Dimensions: Length: 12 m, Width: 2.40 m, Functional Height of each Floor: 2.60 m
• Total Weight: 3,800 Kg
• Structure: Standard Steel Studs and Profiles and Formed Sheets with Nuts and Bolts Joints
• Body: Interior layer with 16 mm MDF or PVC Covering
• Flooring: 18 mm Multi-Layer Wooden Sheets with First-Class Flooring Ceiling: 4 cm Ceiling Sandwich Panel with Polyurethane Insulation (Density 40 Kg/M3)
• Doors and Windows: UPVC Double Glazed Windows; First-class Colored Aluminum Profile
• Entrance Door with Double Glazed Windows; Electrical System: 220V Surface Wiring
• Air Conditioning System: A++ Heating/Cooling Split AC system

Complementary Explanations:

• Application: Temporary Working Camps, Office, Security, Dormitory, Laboratory
•Advantages: Foundation-less Installation, Simple Loading, and Carriage, A Variety of Designs,
• Colors and Materials, Simple Movement
• Plans are designed based on the client's request.

Crisis Prefabricated Houses (Expandable)

Technical Specifications

- Dimensions: Length: 6 m, Width: 2.50 m, Functional Height of each Floor: 2.30 m
- Total Weight: 1,200 Kg
- Structure: Standard Steel Studs and Profiles and Formed Sheets with Nuts and Bolts Joints
- Body: 4 cm Wall Sandwich Panel with Polyurethane Insulation (Density 40 Kg/M³)
- Flooring: Multi-Layer Wooden Sheets with Forest-Class Flooring
- Ceiling: 4 cm Ceiling Sandwich Panel with Polyurethane Insulation (Density 40 Kg/ M³)
- Doors and Windows: Aluminum Windows and Entrance Doors
- Electrical System: 220V Surface Wiring with Socket Connections for Easy Disassembling
- Air Conditioning System: A++ Heating/Cooling Split AC System

Complementary Explanations:

- Application: Temporary Working Camps, Residence, Office, Dormitory, Quick Workshop Equipping, and Critical Areas
- Advantages: Foundation-less Installation, Simple Loading and Carriage, A Variety of Designs, Colors and Materials, Modular Extension of Length and Width, One or Two Floors, Frequent Opening, and Closing without Damage, Easy Shipping (8 units with on Trailer), Installable by 6 Persons as per the Installation Guide and Without any Need to Use
- Fork Lifts or Cranes Plans are designed based on the client's request.

Crisis Prefabricated Houses (Expandable Shelter 3×1)

Applications

Field hospitals: operating room, radiography, laboratory, etc. Field Clinic. Commander post. Controlling room and monitoring room. Meeting room, prayer room, situation room.

Capabilities

- Rapid loading/ unloading time
- Easy carriage with all types of trailers (due to its standard dimensions 20-foot container).
- The capability of assembling all types of required equipment related to the shelter's application type.
- Rapid assemblage/ disassembling of the shelter by two people manually, no need for any special types of equipment.
- Providing a flexible space with a 37 sq meters space.
- Increasing the mobility and operational speed of warring and supporting.

Prefabricated Restroom & Bathroom

Technical Specifications

Dimensions:

•- 3-Cabin: Length: 3 m, Width: 2.20 m, Functional Height of each Floor: 2.20 m

•- 4-Cabin: Length: 4 m, Width: 2.20 m, Functional Height of each Floor: 2.20 m

• Total Weight: 1. 3-Cabin: 1,800 Kg 2. 4-Cabin: 2,000 Kg

• Structure: Standard Steel Profiles and Formed Sheets

• Body: Embossed Sandwich Panel, Restroom and Bathroom

• Flooring: Fiberglass Panel with First Class Ceramic Cabin Flooring: 3-mm Ribbed Galvanized Sheet

• Ceiling: 5 cm En-bloc Embossed Sandwich Panel; 5-Centimeter Sandwich Panel Sheet;

• Doors and Windows: UPVC Windows and Aluminum Entrance Doors

• Water Piping: PVC Pipes with High-Quality Faucets

• Water Heating: Electric Water Heating Set

• Electrical System: 220V Surface Wiring

• Ventilation System: Fan

• Custom Facilities: Flush Toilet, Water Reservoir, etc.

Complementary Explanations:

• Application: Temporary Working Camps, Quick Workshop Equipping and Critical Areas

• Advantages: Foundation-less Installation, Simple Loading, and Carriage, A Variety of Designs,

• Colors and Materials

• Custom-Made Equipment: Toilet, Water Storage tank, etc. Plans are designed based on the client's request

Wheeled Caravan

Technical Specifications

• Dimensions: Length: 6 m, Width: 3 m, Functional: 2.70 m
• Total Weight: 1800 Kg
• Structure: Standard of Various Standard comes with Co_2 Welding
• Body: Special Sandwich Panel (Exclusively made by Ministry of Defence)
• Flooring: 18 mm Multi-Layer Water Proof Tarred From Bottom
• Ceiling: 5 cm En-bloc Sandwich Panel: 5 cm Sandwich Panel Sheet: 0.55 mm Sinusoidal Galvanized Sheet
• Doors and Windows: UPVC Windows and Aluminum Entrance Doors
• Electrical System: 220V Surface Wiring Ventilate

Complementary Explanations:

• Application: Working Camps, Residence, Office, Dormitory, Military and Conference
• Advantages: Simple Movement, Loading and Carriage, Variety of Designs, Colors and
• Materials, Portable by Heavy Vehicles
• Plans are designed based on the client's request.

Metal Structures

The capability of design, manufacture, and installation of different kinds of residential and industrial metal structures, light and heavy joints of refineries and petroleum fields, and also civil operations of the shop and residential towers.

Production processes

The cutting and boring; using conveyor belt saw machines 650, 800, 1100. Single shaft, the dual pillar and radial drilling machines, plasma gas CNC cutting, rail cuttings, and 5-nozzle upright cutters, CNC drill, magnetic drill, 80, and 150-ton boring and cutting punches, special saw, chamfering machine and so on. Assembly and welding: using various Co2 and electric welding machines, automatic and gate under powder/flux welding H-maker machinery, structure welding, gouging machines /arc welding machines, etc.

Burrs scraping and cleaning.

Sandblasting, shot blasting

Using manual and automatic grit blasting equipment and shot blat automatic line with an operating diameter of 2mx2m as per the Swedish standard of SA3, SA21/2, SA2, and SA1.

Painting using different kinds of equipment and stands, painting of different industrial paints such as epoxy, alkyd, and phenol and fire retardant can be done following applicable standards.

Super Steel Structure

The manufacturer is a special and modern company that supplies sheet metal forming, laser, and robotic beveling, and cutting. The company can fabricate the superstructure, blast furnace shell, converter, and variety of products.
Cut-to- shape plates are profiled accurate dimensions on CNC flame cutting machines with square edge, further weld- edge preparation by IGM beveling machine (Robot) or manually flame- cut. The low thickness plates (Approx. 12 mm) will be cut using laser cutting machines for steel, aluminum, and other plates with high accuracy and quality at minimum time.

Construction & Installation of Pipe Rake

Alloy Steel Products

A. Architectural Glass

Increasingly, glass for buildings needs to perform several functions, not only to provide a means to see outside and allow light into the building but often several other functions as well. In most situations, glass has to provide insulation to keep heat in, but the increasing use of glass in structures demands that glass will also keep excessive heat from the sun out of the building, particularly now that our summers are getting warmer. The glass may also be a structural component, and possibly protecting against terrorists or intruders. Glass is, therefore, by necessity a multi-functional component in building design. IGP suggests the most beneficial finished product which performs all the demands expected from it by offering:

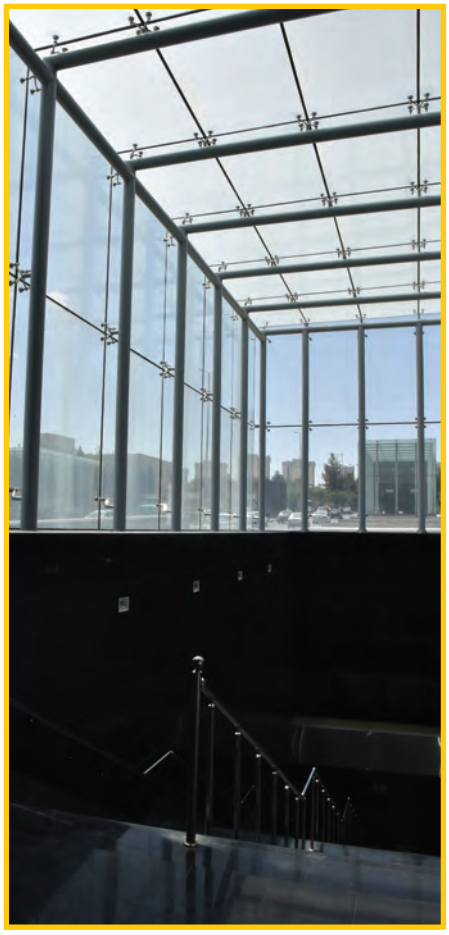
- Insulated Glass.
- Laminated Glass.
- Tempered Glass.
- Chemically Strengthened Glass.
- Bent Glass.
- UV Control Glass.
- IR Control Glass.
- Sound Insulation Glass.

Technical Specifications

- IGP glasses have been used for many applications, including:
- Atrium Glazing
- Curtain Walling
- Glass Balustrades
- Overhead Glazing/Skylight
- Glass Floors and Stairways
- Windows and Interior Partitions, Hotels, Malls

Features

• Custom laminated glass may be produced using a variety of interlayers and/or glass thicknesses, tints, and colors. Available in a variety of colors to harmonize or contrast with the vision area.
• Custom color-matching available.
• May be used monolithically or as an insulated unit.
• Typically used heat-strengthened or tempered.
• May be applied to clear, tinted, or high-performance products.
• Wall cladding is a unique design application using a variety of glass types and paints colors.
• The silkscreen is applied to the surface of the glass.
• The silkscreen is a strong, long-lasting, scratch-resistant product.
• Maximum Size: 3200*2200mm.



A.1 Laminated Safety Glass (Multi-Layer)

The laminate glass utilized in sloped, overhead, and other applications presents numerous design and safety challenges. If the glass breaks, the glazing system must protect against the falling glass. Additionally, an understanding of the unique thermal, solar, and ultraviolet characteristics of sloped and overhead glazing is required to avoid occupant discomfort and poor energy efficiency, and reduce potential damage to household furnishings. This Product Application Note is intended to provide an overview of the range of options that exist to incorporate laminated glass in overhead and sloped applications.

A.2 Tempered Glass

Fully tempered glass is a safety glass, generally four times stronger than the same thickness of ordinary annealed glass. Taking ordinary glass to a tempered state involves heating the glass in a special furnace to approximately 1260° Fahrenheit, then setting a permanent tension between the glass “core” and surfaces by rapidly cooling the glass in a high-pressure quench.. When fully tempered glass is broken, the release of tension between these surfaces initiates a cascade of much smaller glass fragments than ordinary annealed glass. While a person can still get cut by this safety glass, the objective is to eliminate as much of the dangerously long shards of glass raining down within the broken debris as possible.

A.6. Electrical Heating Glass

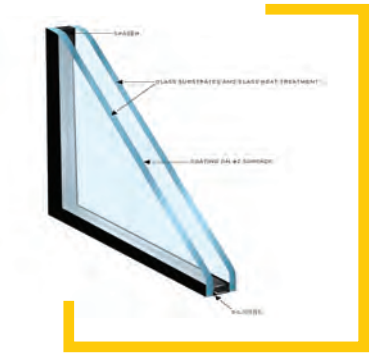
Electrical Heating Glass is a heatable laminated glass that can be applied either on windscreens or backlights or even in the most extreme conditions, allowing a clear and undistorted vision. The main difference regarding ordinary laminated glazing consists of almost invisible heatable microwire filaments embedded in the PVB interlayer film. An electrical current is then passed through these microwires to achieve the mist and ice-free effect.

Features

• Improved safety by giving clear vision during the cold and wet season.
• Whole surface or just partially heatable.
• Fast de-icing and de-misting.
• Microwire filaments are run in a sinusoidal, zigzag, or linear pattern to avoid optical disturbance.
• The heated surface of the glass prevents cold radiating through the glass increasing the level of comfort near the window.

A.4 Insulating Glass

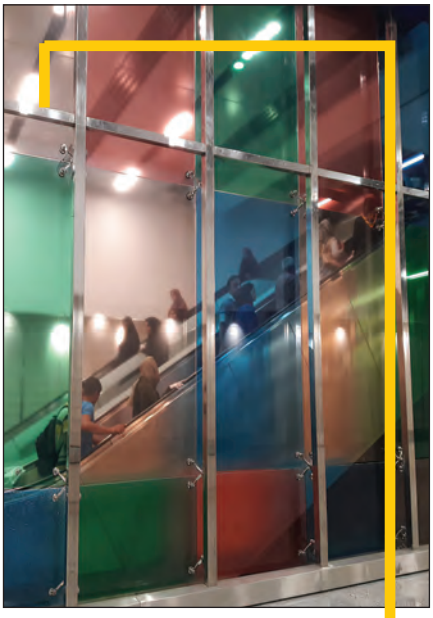
To reduce heat, gain, or loss through the glass, two or more lites of glass are used to create dead air space that inhibits the transmission of heat and cold between the lites of glass. Insulated glass is typically fabricated using very special sealants and a metal spacer at the perimeter of the glass- creating a hermetically sealed insulated glass (IG) unit. Glass used in IG units can be annealed, heat-strengthened or fully tempered.



A.5 Decorative Glass

IGP decorative glass products to satisfy a wide range of applications. Light frit colors and certain pattern designs can cause enhanced brightness when viewed from indoors under certain daylight and background sky conditions, while dark fruit colors will tend to reduce glare. Applications include transparent and translucent glass for interior applications, including glass doors, partitions, handrails, glass ceilings, bathrooms, elevator walls, shower enclosures, court walls for racket sports and sneeze guards for food service.

The correct choice of decorative glass for a particular application requires the consideration of several different evaluated: color and appearance, thermal and acoustic insulation, strength, deflection under design load, and code or safety requirements. Other properties such as flatness, and ease of cleaning, which can make decorative glass the material-of-choice, may also need to be considered.



Fender

General

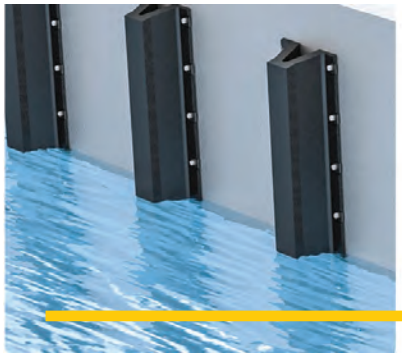
All Types offenders (shock absorbers of quays) are designed, manufactured and tested by experienced experts based on weight, size, and dimensions of the ships and according to the technical specifications (mentioned in the catalog) used by reputable companies such as Shibata, Sumitomo, and Bridgestone (with accordance to the ASTM and JIS standards).

For your more information, this completely engineering part (i.e. fender) is installed on the edge of the jetties and acts as a shock absorber; and due to its elasticity characteristics, it prevents the destruction of ships' bodies and maritime constructions.

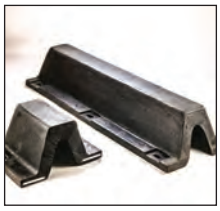
Fender Types

Most of the produced fenders are often V-type, D-type, and Cylindrical shapes.

Up to now, DIO has been able to design and manufacture several sizes of the fender needed for Iran's southern and northern ports.



Approx. weight	Lenght	Height	Fender type
650	1500	800	Cylindrical
660	2200	600	DD600
350	1500	400	Lmdf400
730	1500	600	Sa600
220	2000	250	Sa250
160	1500	250	Sa250
848	2500	500	SV500
310	1000	500	SV500
154	1000	300	SV300
333	2500	300	SV300
1200	1500	1150	Suc1150



Expansion Joint

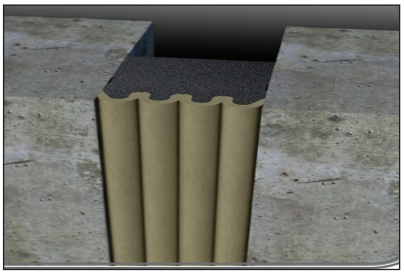
Expansion joints connect separation lines in the bridge parts. Separation lines are capable to absorb movements caused by the change of status in different directions. The expansion joints made by Rubber Factory (Type T) make it possible to move shear deformation to rubber parts. Steel sheets used in tiers are resistant against atmospheric factors and works as joining and covering agent between the upper parts of the bridge.

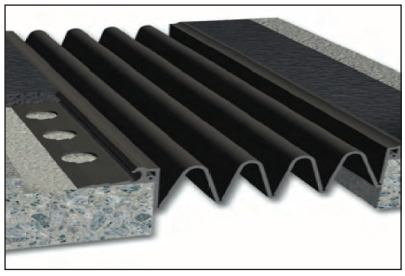
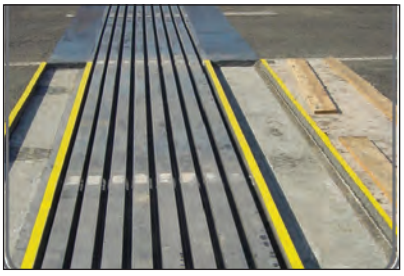
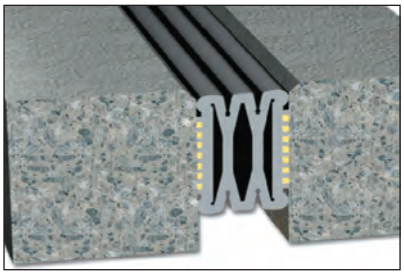
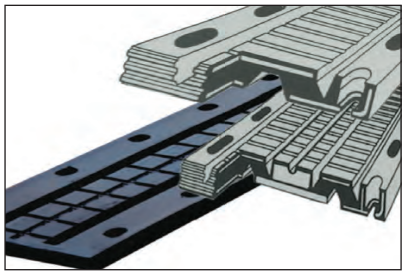
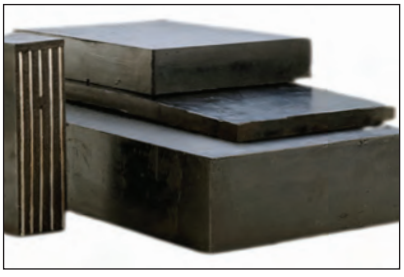
The expansion joints manufactured in this complex has 1 to 5.1 meters in length. These joints are made of stainless steel and special rubber which are resistant against aberration and environmental factors. Also, the expansion joints are connected with a special adhesive and keyed joints.

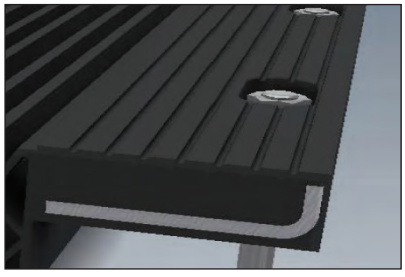
The installation of expansion joints transfers the horizontal forces through the friction between the tires and concrete. The horizontal force which is caused by the breaking of the vehicles and resistance of the rubber against environmental factors such as contraction, flow, temperature changes can be transferred by this product.

Expansion joint connections have plenty of capabilities to adapt to themselves with horizontal movement (drift and drag) and altitude changes (pressure level). This feature is very important as the horizontal movement of the motor and load changes. The connectors are mounted on a metal substructure. Connections typically have four grooves which are associated with greater movements. This would avoid the incoherence while contraction pressure of the environment is washed and sandblasted thus adherence to the basic structure of the product is guaranteed. Our experienced experts, having efficient and useful experience, are reliable advisors to guide the customers to choose their required expansion joints.

Type	Code	Chat Bridge	Thickness	Width	Length	Longitude Step	Screw Hole Size	Size Width Screw
T50	58011	40	45	274	1400	200	14	220
T60	58021	40	50	326	1500	240	14	240
T80	58012	60	49	355	1250	250	16	280
T100	58015	70	56	391	1500	250	18	300
T120	58018	80	58	591	1500	250	16	500
T140	58016	90	81	470	1500	250	18	370
T160	58013	120	83	726	1000	250	25	615
T250	58014	160	81	890	1000	250	25	790
T280	58022	178	87	936	1250	250	30	830
T350	58017	220	103	1105	1250	250	30	980
AW100	58020	30	32	198	1000	750	20	-
T50	58029	30	33	242	1410	350	16	172





Neoprene

We are one of the first and the most creditable manufacturer of neoprene (the cap plate of the bridge) and its products are based on the international standards DIN 4141 and ASTM D 4014 in Iran. The organization is also proud to codify the national standard for the cap plate of the bridge. Neoprene (the cap plate of the bridges) manufactured following DIN 4141 or ASTM D 4014 standards are in different sizes and made of rubber and steel layers for bridges with different forces and mouths. These parts are capable to endure vertical and horizontal loads of the bridges. They can also rotate around different axes as well as simultaneous alterations caused by movements such as pressure, contraction, temperature, creep, etc.

The Elastomer in this product is resistant to weather conditions and its lifetime is more than twenty years. The manufactured cap plates are verified by the Iranian Institute of Standards and are used in many projects.

The tolerance of elastomeric pads

All Elastomer layers such as sheets, covers, and simple pads have the same thickness. All steel plates inside the pads are made of the same thickness. Unless based on the customers' order the pads thickness mainly the last steel plate adjacent to the external sheet would be different.

The variations of parallel plates and the designed level should not have an average slope of more than 0/005 for the upper level and 0/006 for side level.

ASTM D 4014 / DIN 4141		
Specifications	Standard Amounts	Amounts Before Aging
Hardness	45-75 (shore A)	60 (shore A)
Tensile strength	≥ 17(N/mm ˆ2)	20 (N/mmˆ2)
Elongation	≥ 400 (%)	450(%)
Tear Strength	200 (N/Cm)	≥ 300(N/Cm)
Resilience	≥ 30 (%)	45(%)
Pressure stability	≤ 25(%)	20(%)
In 22 hours	NO CRACKS	There isn't any
Ozone strength	1000	Cracks in this