PARSIN

Producer:

- Wall & Roof Sandwich Panels
- Isolated Refrigerator Containers
- Cold Storage Doors
- Duct panels

Parsin Gostar Jonoub Company with the trade name of Parsin was established in 1981 to produce fixed and portable cold storages in Shiraz. In the sake of the latest technical knowledge, as well as experts and managers, Parsin progressed and started a new way in the Iran industry from 1997. Parsin has attempted to produce sandwich panels using polyurethane foam as a a modern product to substitute traditional materials which is an effective step in the industrial progression and self-sufficiency of Iran in this field.

The Parsin Complex continues its development through the increasing trust of the clients with a high pace, the most prominent of these measures are the exploitation of a plant in the Shiraz Great Industrial Town, launching of the advanced continuous production line, and establishment of Plant 2 in the Tehran Shams Abad Industrial Zone. Given the importance given to energy consumption optimization and preservation of national natural resources in recent years, the Parsin Complex decided to expand its activities in the field of design, development, and production of modern construction systems and provide the new generation of buildings with a high energy efficiency, with the trade name of Energy + Villa EPV, using the world latest technology and experience.


پارسین
تولیدکننده ساندویچ پانل
HYUNDAI

Products and Services

Production of wall and roof sandwich panels, from 2 to 15 cm thickness

Consultation, design, and implementation of cold storages and fixed and portable freezing tunnels, according to the customer's need

Consultation, design, and construction of industrial saloons and food storage warehouses

Design, manufacturing, and installation of cold isolate storages for various vehicles

Manufacturing and installation of various cold storage doors (sliding, hinged)

Consultation for selection and supplying all equipment and parts of refrigerating systems

Insulation services through foam spray using portable devices

After sale service including supplying all parts and equipment of refrigerating systems

Design, development, and construction of modern building systems with the trade name of EPV Energy + Villa

Polyurethane structure

Polyurethane is a plastic polymer which is formed in the reaction of the following compounds:

- **Polyol**
- **Isocyanate**
- **Volumizing agent (pentane and 141b)**
- **Catalyst 1 and 2**
- **Air**

The best foam is produced when the reaction of polyol and isocyanate forms a dense cellular structure. The speed rate of foam formation depends on the catalysts.

Polyurethane

Parsin uses a new generation of thermal insulation polymers in the production of its sandwich panels, called polyurethane. This product has been used from 1950 as an appropriate thermal insulator. Polyurethanes have very high insulation properties and can lower energy consumption costs by 60%. Since use of fossil fuels produces %80 CO2 in the world, use of polyurethane is an appropriate way for decreasing energy consumption and hence CO2 as the main reason of global warming. In addition, polyurethane insulator has a high efficiency for thermal resistance, a very low weight, and an affordable cost in comparison to other thermal insulators.

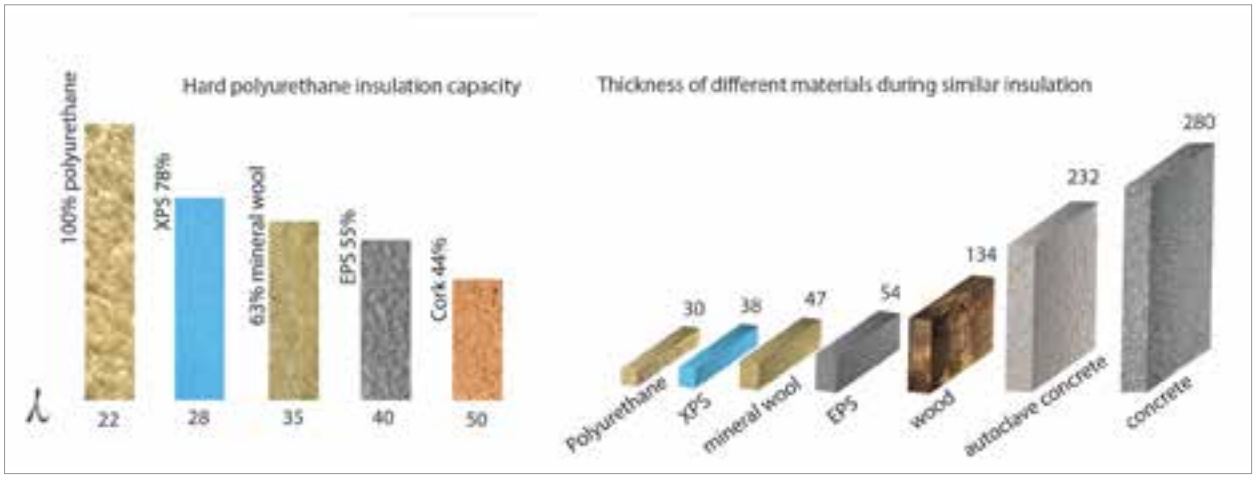
with volumizing agents. In order to achieve a polyurethane foam with the highest thermal insulation, the gas of the pores should have a low thermal conductance.
The Parsin Company uses pentane gas to achieve this. Pentane is an environment friendly gas and does not damage the ozone layer.

Parsin uses the -5portion foam device for production of its high-quality products. This device provides the exchange of each portions to operator during the production to achieve the best foam.
When the foam reactions complete, millions of dense pores are formed which are filled

Comparison of the thermal insulation ratio of polyurethane foam with other materials:

polyurethane sandwich panels enjoy of a favorable efficiency compared to other thermal insulators. The best advantages of this foam are

Given the polyurethane features mentioned, it is the best material for production of continuous sandwich panels. As a thermal insulator, hard



its high mechanical hardness, high adhesion tendency, and simple processing, production, and installation.

- Proper and adequate adherence to the coated metal sheet.
- Highest resistance against tensile and pressure force when applying for wall and roof coating.
- Highest thermal resistance.

Polyurethane cellularity during production is of great importance, because the cellular structure affects the mechanical properties of polyurethane in addition to density. Polyurethane is also used as a moisture insulator and given the close cellular structure of the Parsin polyurethane, no capillary transfer of moisture can occur. Water penetration will occur only when molecular distribution happens. In this case, the weight of polyurethane increases

Features and characteristics of polyurethane:

Features and characteristics of polyurethane vary according to the density. Polyurethane sandwich panel can be produced in different densities of 100-30 kg/m3 according to its application. It should be noted that polyurethane of 40 kg/m3 has the highest thermal insulation. In the 40 kg/m3 polyurethane, only %4.5 of the foam is made of polyurethane and the remaining %95.5 is made of air and volumizing gases.
Three features are important in the polyurethane sandwich panel.

Resistance against water diffusion	Amount (m)
Air	1
Wood	40
eps	20 - 100
Mineral wool	1
Polyurethane	30 - 100
PVC	10000 - 80000
Polyurethane foam	100000
Metals	Infinite

Polyurethane physical features	
Density	40 ± 2 kg/m^3
Heat transfer	max. 0.024 W/mK
Water absorption (168 hours %volume)	2%
inflammation Din4102	B1,B2
Cells density (FCV)	95%
Resistance against vapor diffusion (G)	30 - 100
Shear resistance of compound core	min. 0.11 MPa
Shear force of compound core	min. 2 MPa
Shear force after long-term loading (FCV-long-term)	t: 1000 hours min. %35 t: 2000 hours min. %30 t: 100000 hours min. %7
Pressure force resistance	min. 0.095 MPa
Tensile force resistance	min. 0.018 MPa
Heat resistance (°C)	-200 / +110 ^{0}C

only by %5 and its volume by %15. In these cases, the sandwich panel metal surface protects polyurethane against moisture and polyurethane compounds prevent moisture distribution and its impact on the insulation of the panel, given the high conductivity of water (0.06 W/mK).Impermeability against water vapor is of great importance in the function of sandwich panels. This feature depends on the density of polyurethane foam, its production process, and the metal sheet of the panel surface. These features are precisely checked during production of Parsin sandwich panels and the highest international standards are observed. Stability against diffusion of water vapor and the thickness of the tested compound are two important factors. The following table presents the stability against water vapor diffusion according to air stability. Polyurethane is resistant against a number of chemicals which may contact with, such as solutions, colors, welding materials, etc. In addition, polyurethane is resistant against mineral oils, lethal gases, high pressure and high temperature industrial environment, as well as acidic and alkaline environment. Polyurethane also prevents the growth and proliferation of insects and bacteria. Although resistance against sound in the open cellular polyurethane structure is lower than the close cellular polyurethane structure, it can be sued where it is necessary to absorb the sound (not loud). When loud sound should be absorbed, other methods can be used.

Resistance of polyurethane sandwich panels against fire and inflammation

Hard polyurethane foam used in sandwich panels are classified in three groups of B1, B2, and B3 in terms of fire and inflammation (DIN 4102). Class B3 of hard polyurethane foam are of inflammation type (usual), class B2 of hard polyurethane foam are of self-extinguishing (hard burning) type, and class B1 of hard polyurethane foam are of rapid self-extinguishing (slow burner) type. The Parsin Company is proud to use the latest technology of the world to increase the safety and produce sandwich panels with high-quality B1 and B2 types sandwich panels.In addition, there is another type of hard polyurethane foam known as isocyanurate polyurethane PIR which is completely resistant against fire so-called as fireproof polyurethane foam. Based on the inflammation class of the polyurethane foam, the sandwich panel made of that polyurethane core will have a differentapplication.

Products

Sandwich panel

Sandwich panel is a light and combined structure consisting of two layers of external coating and middle insulating (foam). The coating is usually made of galvanized, zincalume(aluzinc), and aluminum, or aluminum foil, nylon, craft paper. The insulator core is made of polyurethane, polystyrene, rockwool, and asbestos.

Parsin sandwich panels features

- **Sandwich panel core**

Sandwich panel insulator core of the Parsin Company is made of hard polyurethane foam with a density of 2±40 kg/m3 with the fire resistance class of B2 (slow burner) and the resistance class of B1 (fireproof).

- **Sandwich panel covers**

According to the application of sandwich panels, various compounds are use to coat the sandwich panel core.

- **One side metal sheet and one side craft paper**
- **One side metal sheet and one side nylon**
- **Both sides craft paper**
- **One side metal sheet and one side aluminum foil**
- **Both sides aluminum foil**
- **Both sides metal sheet**

The polyurethane sandwich panel with galvanized metal sheets, colored metal sheets, and aluminum sheets are usually used for external covers against moisture and corrosion. While, the polyurethane sandwich panel covered with aluminum foil, nylon, polyethylene, and paper are used for internal applications such as insulation of cold storages floors (under concrete layer), aquatic constructs floors, etc.

Application of sandwich panels

- Isolated rooms
- Mobile hospitals and clean rooms
- Various industrial and office partitions
- Food transport containers
- Types of Connex and pre-made house
- Agriculture saloons, greenhouses, and mushroom farming saloons
- Sport complexes and indoor pools
- Types of mobile Connex for special cases
- Military shelters and mobile laboratoriess

Advantages of sandwich panels

- Light weight (resulting to save and use less material in buildings and reduced total costs)
- Low heat transfer coefficient
- Fire resistance class of B1 and B2
- Low installation cost
- Moisture insulator
- Sound insulator
- Appropriate mechanical features (against shear, tensile, and pressure forces)
- Low energy consumption (cooling and heating cost-effectiveness)
- High resistance against microbial and biologic contamination
- Product beauty and various colors

Parsin various polyurethane sandwich panels

- Wall sandwich panels
- Roof sandwich panels

Metal sheets used in the Parsin polyurethane sandwich panels are galvanized, aluminum, and zincalume(aluzinc) type which are of 0.4 to 0.7 mm thickness.

All metal sheets have various colors coated by a furnace super polyester with a thickness of 25 micron. A -7micron furnace primer color is used at the interface of the metal sheets and the foam for better adhesion. Each metal sheets of wall and roof sandwich panels is either male or female, making their installation and exploitation simple and sealing of the building better.

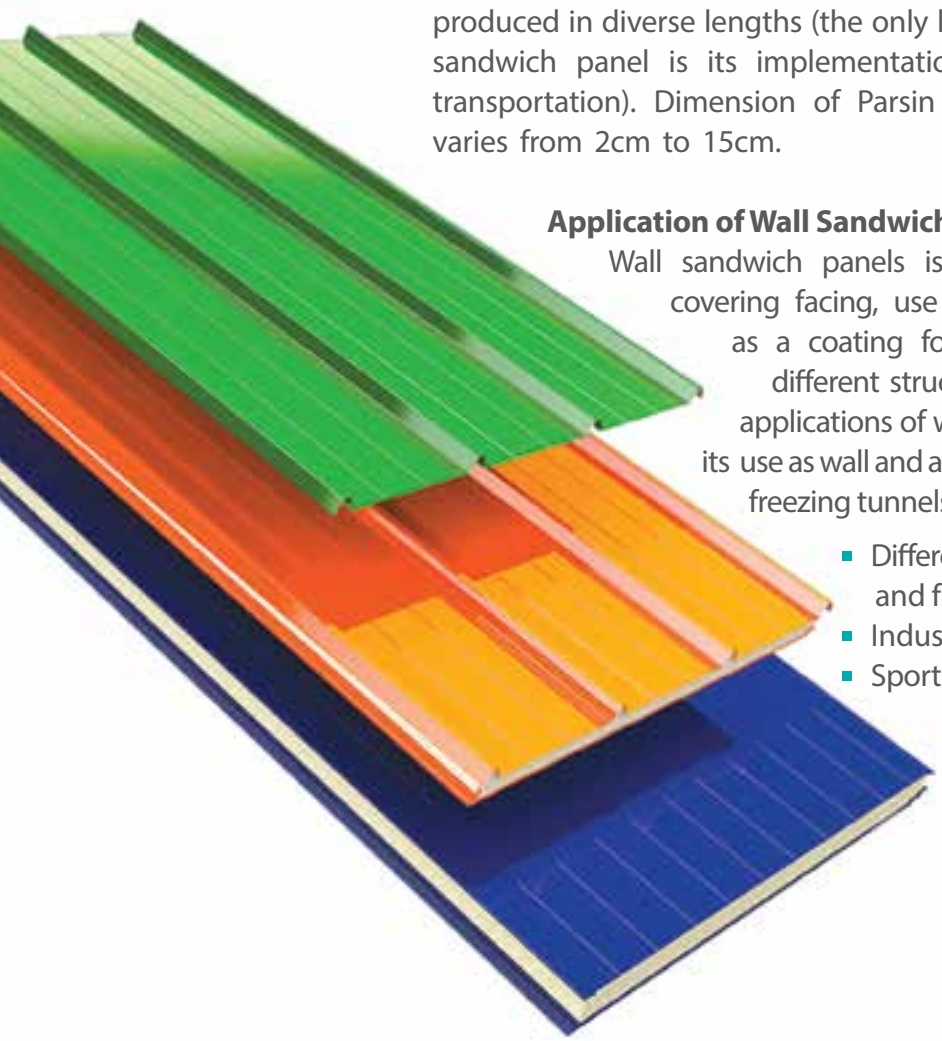
Thickness of wall sandwich panels of the Parsin Company and heat transfer coefficient

Thickness (mm)	40	50	70	80	100	120	150
Heat transfer coefficient (W/m2k)	0.501	0.398	0.279	0.247	0.199	0.167	0.134

Sandwich Panels

Wall Sandwich Panels

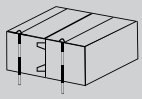
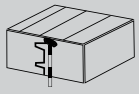
Parsin wall sandwich panels are suitable insulators against heat, humidity and sound and because of producing through continuous production line of Parsin, sandwich panels can be produced in diverse lengths (the only limitation faced lengthy sandwich panel is its implementation as well as difficult transportation). Dimension of Parsin wall sandwich panels varies from 2cm to 15cm.



Application of Wall Sandwich Panels:

Wall sandwich panels is an ideal solution for covering facing, use as indoor isolator and as a coating for flooring and roof in different structures. One of the other applications of wall sandwich panels is its use as wall and as roof of cold storage and freezing tunnels.

- Different Kinds of cold storages and freezing tunnels
- Industrial halls
- Sport and recreational saloons
- Residential buildings
- Prefabricated houses
- And…

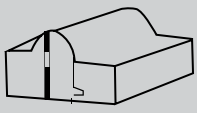
Non-useful width	useful width	Specifications of the Parsin wall sandwich panel in terms of fittings	
1020	1000	Wall panel with visible fastener, Can be installed vertically or horizontally	
1200	1180		
1020	1000	Wall panel with hidden fastener, Can be installed on the wall vertically or horizontally	
1200	1180		

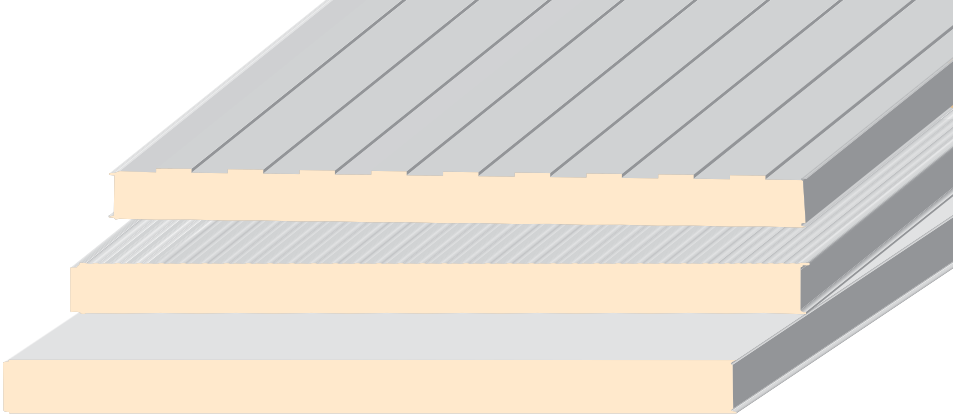
- Roof Sandwich Panel:

Producing different types of roof panels, Parsin has offered a proper solution for meeting entire needs of a roof coating in all industrial and structural projects. Roof sandwich panels with their trapezoidal structure are suitable insulators against heat, humidity and sound. Dimensions of Parsin roof sandwich panels varies from 2cm to 10cm.

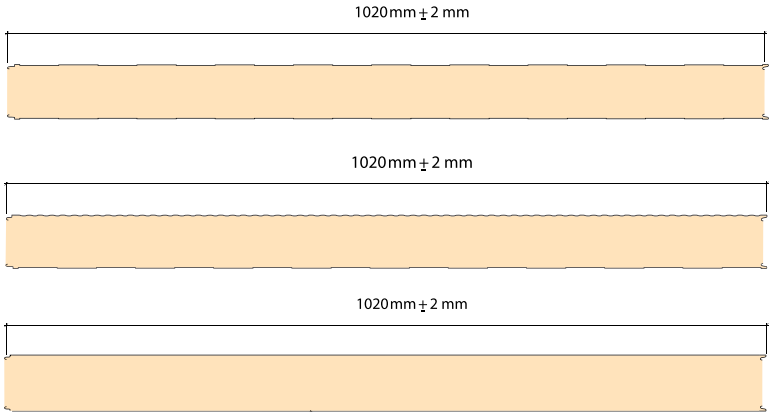
Application cases of Roof Sandwich Panels :

- Industrial Halls
- Sport and recreational saloons
- residential buildings
- Parking lots
- And …..

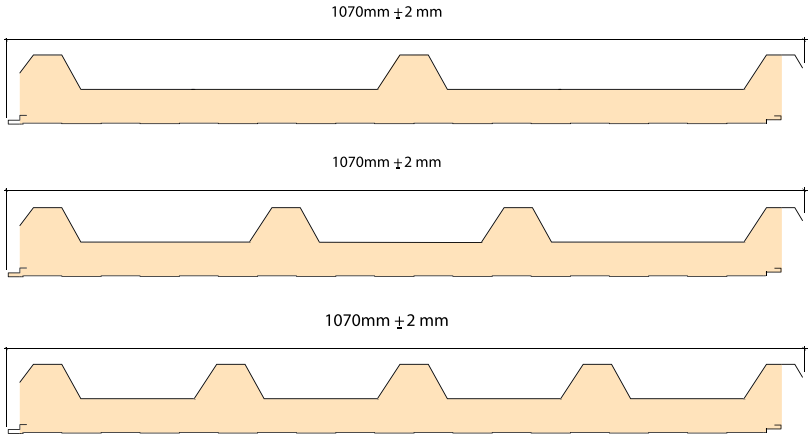
Non useful Width(mm)	Useful Width(mm)	Parsin Wall Sandwich Panels
1070	1000	



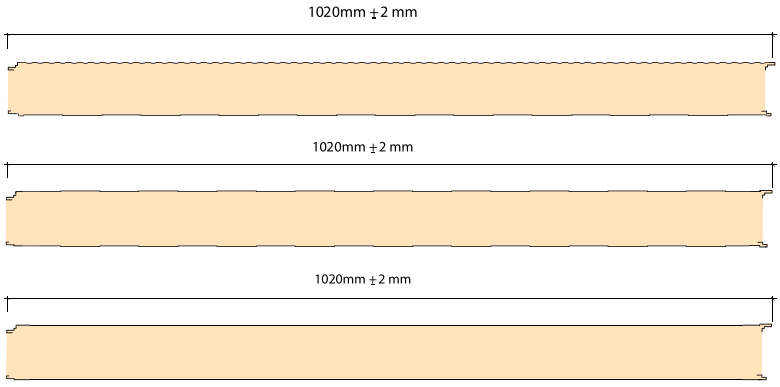
Wall Panels



Roof Panel



Hidden punch panels



Cold Storage and Freezing Tunnel:

Cold storages and Freezing Tunnels of Parsin are divided into two fixed and portable sections as follows:

- **Fixed cold storages and freezing tunnels**:

This kind of cold storages are established in a covered indoor space that body and ceiling of it is made of wall sandwich panel plates at both sides (diameters 7 and 8cm for plus zero applications and 12 ,10 and 15cm diameters for sub-zero applications). Flooring is made of nylon sandwich panels at both sides, considering customer's demand and its application. Among the features of cold storages made by Parsin sandwich panels, we may point out higher efficiency in preserving energy, ideal density of polyurethane (2±40kg/m3), anti-humidity and stainless property, resistance against stroke and sound, antibacterial nature of it due to having coated steel and capability of installing and dismounting in every environment.

- **Portable cold storages and freezing tunnels:**

Parsin portable cold storages in dimensions of (20 feet and 40 feet customized) are designed and manufactured in a way that you may transfer it to another place easily and its components including body, flooring, and ceiling are made of sandwich panel and frame or original structure.

One of the capabilities of such cold storages is higher efficiency of it in saving energy, ideal polyurethane foam density (2±40kg/m3), anti-humidity and stainless property, resistance against stroke and sound, antibacterial nature due to having coated steel, holding chassis for placing compressor and complete fencing of cooling system.

Fixed and Portable cold storages and freezing tunnels:

Enjoying its committed and professional staff and considering needs of its customers, Parsin has a brilliant record in the field of manufacturing, installing, and commissioning kinds of sub-zero and plus-zero stabilizer cold storages, pre-cooling rooms and freezing tunnels. Considering importance of reaching desirable thermal insulation with minimum energy consumption in cold storages, today use of sandwich panels with polyurethane foam core has considerably absorbed attentions.

Factors effective on manufacture and implementation of cold storages:

To ensure the appropriate selection of suitable diameter for consumptive sandwich panel, following cases shall be considered:

- Application of cold storage (type of good and goods arrangement style)
- Capacity of cold storage (dimensions and number of rooms)
- Energy costs
- Production Cost
- Geographical region
- Environmental Conditions of the project(inside
- The design of refrigerating systems

Considering above Content and using the thickness of insulation formula, you can use the following table to choose sandwich panel used in cold storages. It should be noted that 10 (W/m2) is considered as the highest temperature transfer for the Q parameter.

$$S = \frac{\lambda * \Delta T}{Q}$$

S= thickness of insulator

λ= Core heat transfer coefficient

ΔT= inside and outside temperature difference

Q= heat flow

ΔT														λ Panel W/m²k	s PUR (mm)
80	70	65	60	55	50	45	40	35	30	25	20	15	10		
						10W/m²>	9.9	8.6	7.4	6.2	4.9	3.7	2.5	0.274	80
					10W/m²>	9.0	8.0	7.0	6.0	5.0	4.0	3.0	2.0	0.1999	100
			10W/m²>	9.2	8.3	7.5	6.7	5.8	5.0	4.2	3.3	2.5	1.7	0.167	120
10W/m²>	9.4	8.7	8.1	7.4	6.7	6.0	5.4	4.7	4.0	3.4	2.7	2.0	1.3	0.134	150

Cold Storage Door :

Parsin cold storage doors are in two forms including sliding and hinged doors manufactured using advanced machinery and world's modern technology in a fully-integrated form. Design and manufacture of these doors is such that it is sealed after closing and avoids energy loss. Considering space and size of entries and taking into account customer needs, cold storage doors are manufactured in different and various sizes and dimensions in diameters of 12 ,10 ,7 and 15cm.

Parsin sliding and hinged doors (with and without pivot) hold following specifications:

- Door coating plate is galvanized (coated pre-colored in different colors), aluzinc and fiberglass
- Polyurethane foam coating with density of 2±40kg/m3
- Heat and frost-resistant special gasket.
- Antifreeze thermal element of door around gaskets.
- B2 Fire-resistant Foam (slow-burning)
- Firm and Secure frame which is humid and stroke-resistant.
- Anodized aluminum frame or special UPVC Frame
- Fittings made of the best raw materials including fiber polyamide, stainless steel, etc
- Different kinds of door locks with capability of opening from inside the cold storage.
- Capability of installing vision valves in different forms and dimensions on sliding door of cold storage.
- Capability to automate sliding doors.
- 1 year guarantee and after sale services for fittings and products.


PARSIN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Producer of Insolated Refrigerator Containers for variety of vehicles :

Parsin is manufacturer of insolated refrigerator cab in accordance to kinds of vehicles available in the market and also a member of Iran Body Builder Society. Relying on its technical engineering team and using quality raw and consumptive materials and by using the most modern equipment and machinery in addition to adhering to requirements of manufacturing and installing according to ISIRI 11889 Standard, Parsin manufactures cabs with higher stability and strength against strokes, with various minus and plus zero applications and according to customers' need.

General Specifications of Applications:

- Manufacturing steel chassis considering requirements of ISIRI 11889 Standard
- Side, front and ceiling wall is made of a whole sandwich panel insulator with internal and external coating of galvanized pre-painted sheet metal with the diameter of 0.8 and 0.6mm in diverse colors (coating of furnace super-polyester type with the diameter of 25 in external section and 7 primer color in internal section in the contact place of foam with metal sheet).
- Body and ceiling coating with injective polyurethane foam insulator with density of 2±45kg/m3 (density of 45 result in stability and higher resistance of the cab/cargo).
- Flooring is made of rail aluminum, steel and corrugated galvanized (material of flooring is subject to customer's order).
- Coil around cargo with Pre-painted furnace aluminum filler (aluminum profiles with external paint) and its connection with panels with steel and aluminum clinches.
- Double door in rear with PVC insulator (number and size of doors is subject to customer's order)
- Installation of side equipment including ladder, shield, mudguard, inner and outer illumination, ventilation valve, lock and hinge are of stainless steel

Automotive Refrigerator Units :

Cooling systems of Parsin Transportation are proper for any kind of minus and plus zero applications. Our experts considering system's function, user application type, car type as well as considering geographical scope always try to guide and lead customers to choose proper system by offering consultation and providing them with required technical information.

On this basis, automotive refrigerator units include following groups:

- Single-system units (automotive driving force)
- Double system units (automotive driving force- 3 phase electromotor driving force).
- Units with independent driving force (petrol or diesel)
- Plate units (compressor and electromotor are in the form of integrated).

Application of the kinds of automotive refrigerator units :

Subzero/Minus Zero Cold Storages which Freon refrigerant of them is R404a and is specially suitable for transiting and distributing frozen materials (zero to 18- degree), including frozen red meat, frozen chicken, fish, and shrimp, frozen hamburger, pizza cheese, ice cream, frozen cream, subzero special drugs, plasma, etc. Meanwhile, we may carry these unfrozen materials under specific conditions via these models (zero to 4+ degree centigrade).

Considering above-mentioned particulars and specifications, kinds of Parsin insolated refrigerator containers and their dimensions are as follows:

	car type	external dimensions (m) (width*length*height)
1	saipa hybrid	2.5 × 1.70 ×1.60
2	saipa diesel	2.5 × 1.70 × 1.60
3	photon	4.20 × 2. 2 × 2.20
4	hyundai	4.40 × 2 × 2.20
5	alvand 5/4 ton	3.20 × 1.90 × 2
6	alvand 6/5 ton	5 × 2.10 × 2.20
7	alvand 8/4 ton	5.10 ×2.10 × 2.20
8	kaviyan 105	3.20 × 1.90 × 2
9	kaviyan 106	4.80 × 2.10 × 2.20
10	kaviyan 109	5.10 × 2.10 × 2.20
11	kaviyan 112	6.10 × 2.40 × 2.40
12	amico EM6	3.75 × 2.05 × 2.20
13	amico 5/2 M	3.30 × 1.90 × 2
14	(isuzu NKR5/2) 77 ton)	3.20 × 1.90 × 2
15	isuzu K 75 NPR (6 ton)	4.85 × 2.20 × 2.20
16	isuzu M 75 NPR (8ton)	4.85 × 2.20 × 2.20
17	isuzu FVR (18 ton)	6 × 2.50 × 2.50
18	(jac N 5/6) 56 ton)	5 × 2.10 × 2.20
19	renault midlum	6.45 × 2.50 × 2.60
20	budsun	5 × 2.20 × 2.30
21	khavar	4.20 × 2.20 × 2.20
22	FAW (6ton)	5.20 × 2.05 × 2.20

Freon refrigeration system

Compressor

In fact the compressor is the main part of refrigeration system and it`s function is to refrigerate at the same time temperature and gas pressure would be highly increased.

Operator

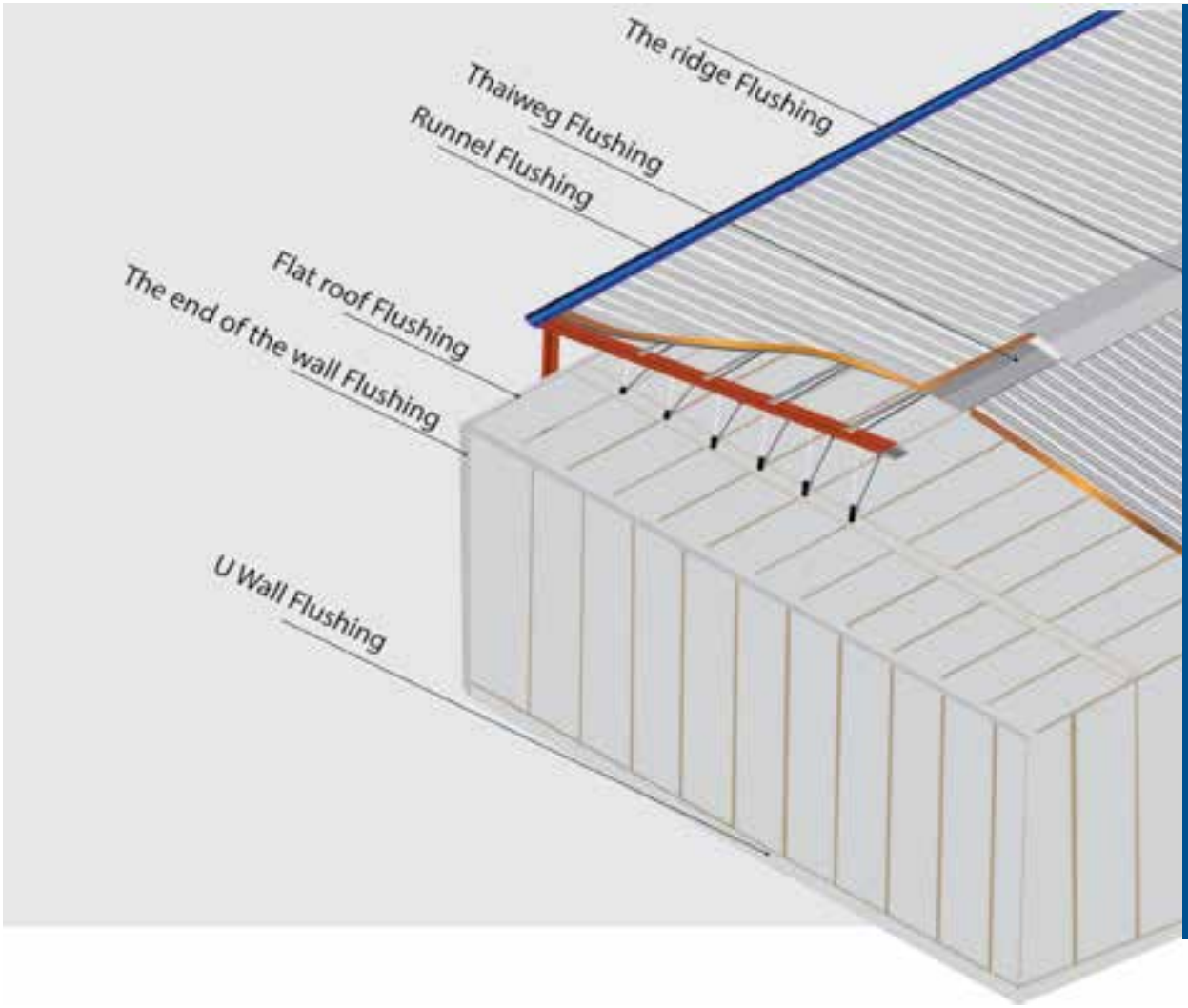
The operator is one of the main refrigeration equipment in which the liquid refrigerant turns into steam by getting heat and it causes the cold storage temperature decrease. The operators are produced in various types of ceilings and walls. Also, in order to de-frost the pipes in the gas circuit, an anti-divert or diverter gas system is used.

Expansion valve

The expansion valve controls the flow of the refrigerant fluid into the evaporator. The pressure and temperature of the refrigerant flowed through the expansion valve of the valve and the refrigerant began to evaporate at low pressure and temperature.

Condensing unit

The hot gas would inter the condenser with high pressure and temperature and after entering the condenser cold pipes, it would cool down with air flow of condenser fans and transforms to liquid. The capacity of the condensing unit varies according to the standard air density (above sea level) in different cities. Of course, there are other factors such as the dry temperature of the environment in the summer and the difference in temperature of the intake air with distillation can impact on their capacities. Parsin Consulting Engineers are helping customers select their devices with technical information.



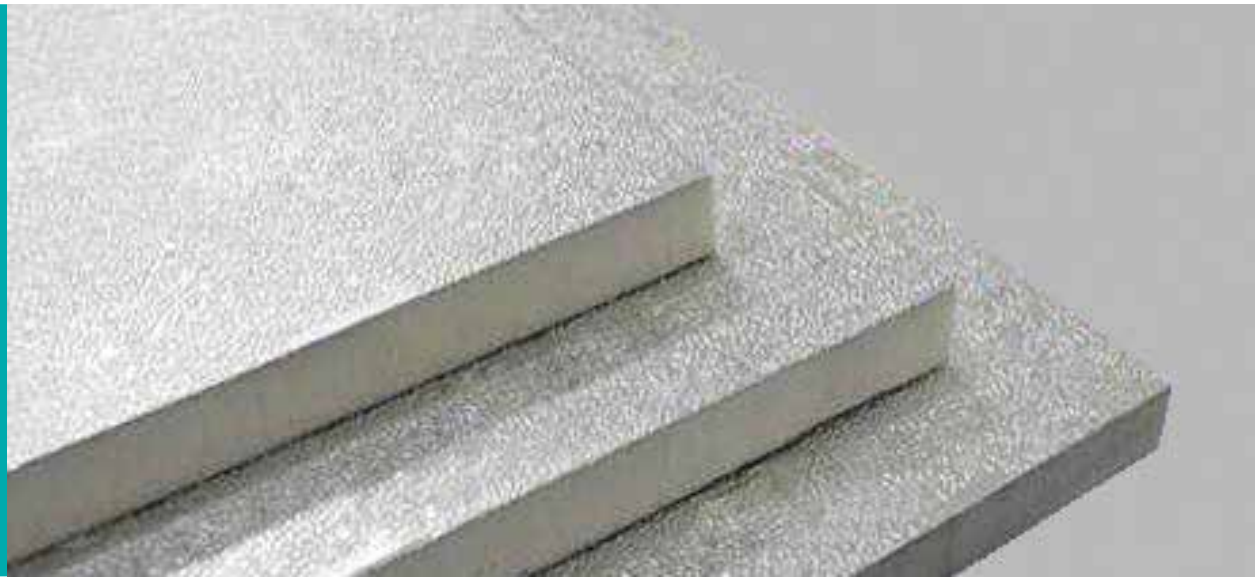
Flashings

Flashings contribute to cohesion of external facing of buildings by Acting as joints. Flashings are made of panel coating materials mostly used for sealing in facing section and hiding angles of operated sections on (housetop and flat) ceiling, aqueducts, shelters, etc.

These tools are manufactured from various kinds of materials (galvanized, aluminum, and PVC plates) and in different dimensions and diameters Depending on type, application site, type of project and based on customer's order.

Kinds of flashings manufactured by Parsin :

- Crest Flashing
- Thalweg Line Flashing (beneath crest)
- Wall-end flashing
- Flat roof flashing
- Wall U Flashing



Duct Panels :

Duct panels are to be regarded as a remarkable evolution in ventilation systems and installations industry considering properties of polyurethane foam as an ideal thermal and humid insulation. On the same basis, applying the most modern equipment and machinery, Parsin produces this product with the premium quality in order to meet customers' need.

Structure of Duct Panels :

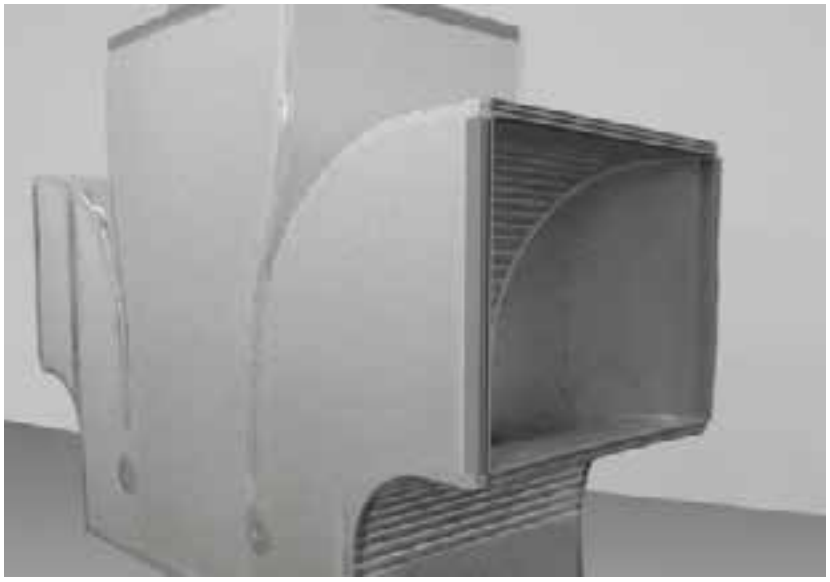
Duct panels are comprised of a compound structure holding three parts; intermediate layer made of polyurethane foam (PU) and/or polyisocyanurate foam (PIR) that is regarded as a thermal insulation and there are two layers at both sides as a the coating of intermediate layer made of reinforced or normal aluminum.

Advantages of using duct panels :

- **Avoiding energy loss and conditioned air existing in ventilation channels and installations.**
- **Fast installation (economic time and cost of manufacturing).**
- **Thermal and humid insulation (suitable for ventilation systems with high pressure).**
- **Sound insulation (considering properties of polyurethane foam, we may use duct panels for reducing sound/noise of ventilation channels and installations**
- **Extremely low weight**
- **Fire-resistant**
- **Sealed and waterproof**
- **Healthy due to smooth and polished internal surface and impossibility of bacteria accumulation**

Dimensions of Parsin Duct Panel :

Width: 1 to 1.2m
Diameter: 20mm to 150mm
Length: arbitrary (depending on customer need and taking into account transportation conditions)



connex and prefabricated homes :

Applying world's modern technology, advanced machinery and top quality raw materials, Parsin has designed and manufactured connex and prefabricated homes in two following types:

- **Portable**
- **Prefabricated at site (with capability of assembling and disassembling to be used in other locations)**

Connexes have different applications including offices, domicile in times of crisis, clinics and emergency wards, military camps, workshop equipment, etc. Considering different applications of connex and diversity of its utilization, Parsin designs and manufactures different kinds of connexes in various dimensions based on customers desires.

In relation to this, principal components of connexes are as follows :

1- Frame or principal steel structure

2- Sandwich panel with polyurethane foam (roof and wall types)

3- Infrastructure of flooring with wooden, ceramic, steel, etc coating

4- Aluminum or UPVC single and double-shell doors and windows

5- Light and illumination system

6- Customized equipment of fixed connex:

- Fiberglass or panel sanitary service
- Heater
- Cooler duct
- Kitchen cabinet
- Partitioning
- Corrugated aluminum or iron flooring
- Sink

Advantages of using connex and prefabricated homes:

- Higher manufacture and installation speed
- Suitable thermal insulation against heat, cold and significant saving of energy
- Humidity and sound insulator
- Reduced cost of manufacture and maintenance
- Lower weight of these kinds of structures
- Capability of being used for different purposes

Services

Insulation :

Thanking our several years of experience in the insulation industry and enjoying experienced personnel and by studying the geographical-environmental situation and type of need, Parsin Gostar Jonoub suggests best method of insulation to you. Foam insulation beside preserving temperature of building and controlling moisture, is useful for reducing noise as well.

Application Fields :

- roofs, walls and flooring of industrial and sport complexes
- Residential and administrative buildings at tropical and cold climates
- Poultry and greenhouse saloons
- Train wagons, ships and floats
- Pipes and kinds of tanks

Foam Injecting :

Injection foam is used for insulation of big and complex surfaces and/or surrounded spaces access to which is difficult or impossible. In this method, mixture of synthetic foam materials is injected inside furrows and gaps contrived in advance. This method is used for sealing window around, doors, joints between sandwich panels and for thermal, humid, and sound insulation.

Foam Spray :

In prefabricated buildings, polyurethane foam spray is used for surface of sections different forms with non-geometrical dimensions and, in some cases, for interior and exterior decoration of buildings. In times of dispersing in the form of spray, chemical materials and resin are extended in the form of foam and is solidified at the applied section. Diameter and density of polyurethane foam spray is different depending on expected type of application. Considering closed-cell nature of polyurethane foam, insects and bacteria are not able to survive or grow inside it. From among other specifications of this foam, we may point out its considerably low weight for being used in surfaces with lower resistance.

Consultation, Design and Implementation :

Relying on its experienced technical engineering, Parsin Gostar Jonoub Co. has always endeavored to provide useful and profitable information to its customers by rendering consultation services in the field of project costs, computations, design, manufacturing, implementation and so on. Parsin Gostar Jonoub Co. offers complete solutions to it's clients, implementing the entire project including; design, supply of materials, installation, implementation and commissioning in a complete form and in a proper scheduling. Meaning that, the client is enable to supervise the project by delegating the job to Parsin Co.

- Below and above 0^{0}c
- Freezing Tunnels
- Industrial and sport halls
- Cooling systems and …

Installation of sandwich panels :

In order to meet satisfaction of our customers and with the purpose to render some distinguished and complementary services and using its experienced team, Jonoub Co. has taken a due action to install sandwich panels manufactured by Parsin Co.

The engineering team performs precise computation and analysis of the required area and operates with several technical teams of experienced and trained installers; we are offering to serve installation services to our customers.

After-sale Services :

We believe that in a competitive modern market place, a customer deserves respects and high quality after sales care. In order to maintain customer's satisfaction and help them to gain the utmost utilization of purchased products and services, Technical and After Sale Services Unit has constituted following operational divisions:

Technical Support and Training :

Upon passing designated training courses, Parsin experts resume their activities in rendering after-sale services with a special sensitivity, resolving doubts and technical problems of customers in the best and shortest possible time.

Guaranty :

1 Year guaranty for parts change and repair.

Parts :

By providing spare parts in the application field and cooling systems (fixed and portable cold storages/refrigerator car unit) during the guaranty period and 10 years after the sale, Parsin Co. has always tried to meet satisfaction of its customers.

EPV
ENERGY+VILLA

EPV

With regards to the population growth and increased demand in the field of housing and given the inefficiency of the traditional and common systems of mass production, industrial construction methods and as a result, reduced time of construction and return of capital seem necessary.

Even in the case of access to capital, materials, and human resource, the housing problem cannot be solved through the traditional construction methods which are often time consuming. In other words, using the rapid construction methods and pre-made products in buildings is a rational solution.

Western countries were able to develop industrial methods and pre-made products using construction technologies after the World War II and overcame this problem. If the construction technology is defined as the application of industry in construction, it was used in Iran from 1951, and reached its highest degree during town construction in certain large cities. Pre-made construction technology with sandwich panels is such an innovation.

In the recent years, the traditional construction has given its place to industrial construction in the developed countries.

Lightness, resistance, integrity, insulation, rapid installation, and simple implantation are of the advantages of this technology, which complement the standard and safe production process. Iran with its large area and special climatic, social, economic, and cultural conditions and location of its most parts on the global seismic belt, as well as housing shortage due to the population growth in the country. necessitate this technology and the use of optimized materials and industrial construction system.

Given the importance given to energy consumption optimization, using industrial construction methods, and preservation of national natural resources, the Parsin Complex decided to expand its activities in the field of design, development, and production of modern construction systems according to its thirty-year experience. In this regard, it has launched the building system of Energy + Villa using the world latest technology and experience.

This building system is based on using wall and roof sandwich panels instead of traditional materials such as pottery, block, and break, resulting in numerus advantages including significant reduce in implementation time and construction costs.

This construction system is based on application of wall and roof sandwich panels instead of traditional materials including earthenware, block, and brick that have many advantages compared to traditional construction systems, including :

- Lower energy consumption (thermal insulation)
- Sound insulation
- Reducing cost of construction
- Earthquake resistant (light weight)
- Lighting structural system due to reduced dead load of building

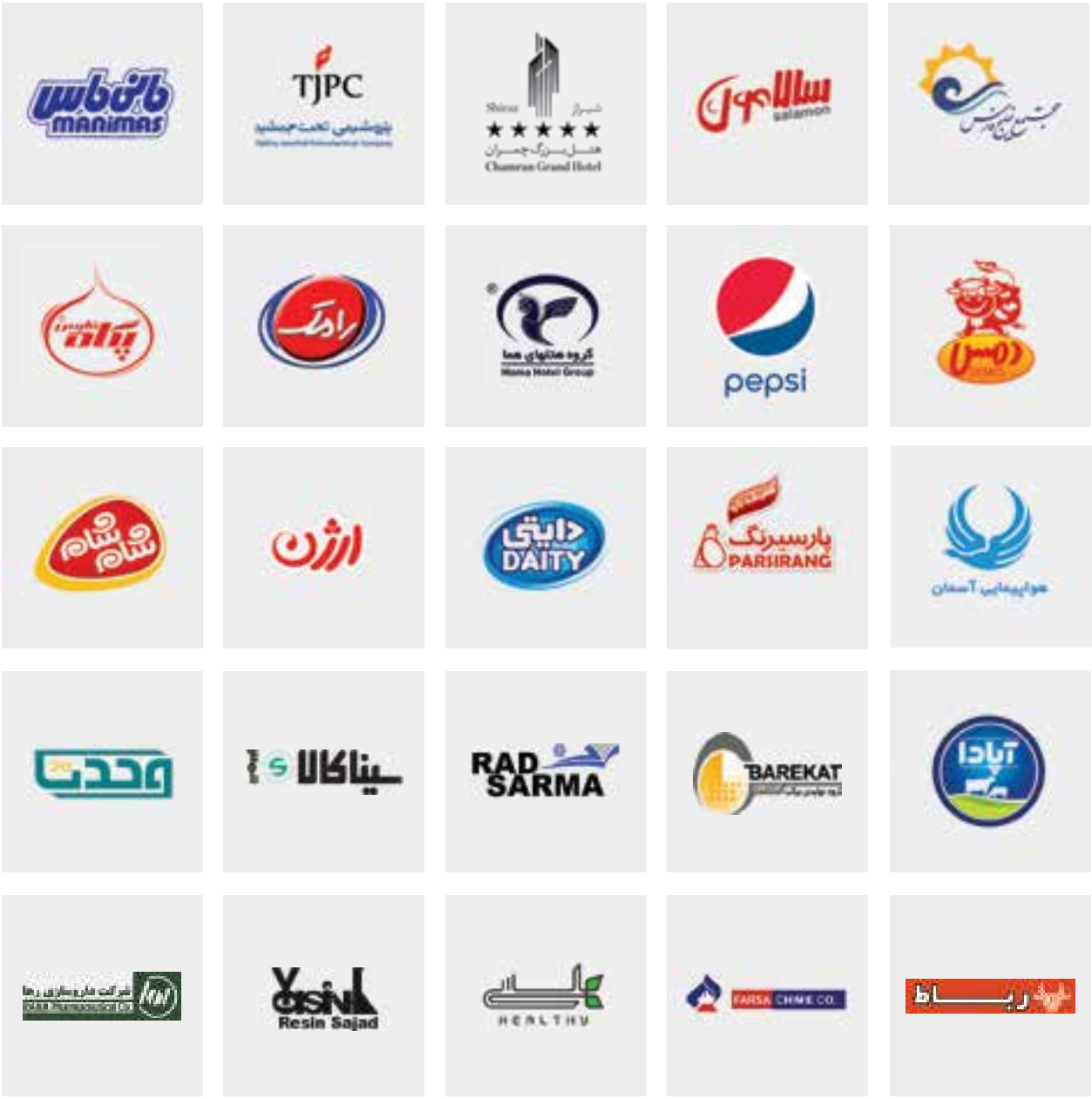
In this construction system, non-load bearing sandwich panels and building have steel structure (bolt and nut, preferably). Executive process of EPV Projects is on the way that first foundation is implemented on the site of project and at the same time, steel structure is implemented considering executive plans in the production factory and simultaneous with completion of foundation at the implementation site. Meanwhile, installation of sandwich starts after completion of main body structure and after moving to the site of project. Doing so, rough work of building is completed in a considerable shorter time and the project enters finishing work phase.

The process of implementing epv projects is as follows :

- Execution of Skeleton and Foundation
- Install the sandwich panel
- Run dry facade with a variety of materials




Some of the customers that Parsin has been proud to have partnered with



Certificate


Certificate Of Registration

Parsin Gostar Jonoob Co.

IMS


Registration Certificate

Parsian Gostar Jonoob

ISO 9001:2008


Registration Certificate

Parsian Gostar Jonoob

OHSAS 18001:2007


Registration Certificate

Parsian Gostar Jonoob

ISO 14001:2004

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