

Islamic Republic of Iran  
Organization for investment economic and technical assistance of Iran

Summary of technical-economic pre-feasibility

The name: Production of all kinds of steel sheets

Section: Fabrication of Basic Metals Sub Section: Coating and Covering

Steel Sheet

ISIC code:

2710512360

2710512358

2710512357

The owner of:

Counselor plan:

The ADDRESS:

: Kermanshah Qasr Shirin Commercial-Industrial Free Zone

Date of P.F.S:

September 1403

**Manager of Iran Investment Opportunities  
SHAHRIG Engineering Company**

[shahrig.comwww](http://shahrig.comwww).



Abstract:

### PROJECT PROFILE - SUMMARY SHEET

Project Introduction	
1- Project title: Production of different kinds of steel sheets	
2- Sector: industrial	Sub Sector: Steel
3- Products / Services: Chromium-plated steel sheet Aluminum-coated steel sheet Zinc-plated steel sheet	
4- location (address): Free Zone <input checked="" type="checkbox"/> Economic Special Zone <input type="checkbox"/> Industrial Estate <input type="checkbox"/> Main Land <input type="checkbox"/>	
5- Project description:  This project is designed to produce various types of coated steel sheets. The plant is scheduled to be constructed in the Qasr-e Shirin Free Trade and Industrial Zone, located in Kermanshah Province. The existence of domestic demand for this product, along with a suitable market for its sale, is considered one of the strengths of this project. Moreover, the location of this project in a border region facilitates the expansion of production and exports in the coming years.	

Project Status
6- Local / internal raw material access : The primary materials needed by this factory are steel, zinc, chromium, and aluminum, which can be sourced from domestic market and various factories.
7- Sale : - Anticipated local market

**8 – Project total time (from start of activities to start of commercial operation in years) :2.5 years**

<b>Schedule</b>	<b>Start of activities : 1403/07</b> <b>Start of works at site: 1404/01</b> <b>End of Works : 1405/12</b> <b>Start of commercial operation : 1406/01</b>
-----------------	---

**9- Project status :**

- Feasibility study available? No
- Required land provided? No
- Legal permissions (establishment license, foreign currency quota, environment, etc) taken? No
- Partnership agreement concluding with local /foreign investor? No
- Financing agreement concluding? No
- Agreement with local /foreign contractor(s) concluding? Yes
- Infrastructural utilities (electricity water supply, telecommunication, fuel, road, etc) procured? No
- List of know- how, machinery, equipment, as well as seller /builder companies defined? No
- Purchases agreement machinery, equipment and know-how concluded? No

**Financial Table**

**10- Financial structure :**

Descriptions	Local Currency Required			Foreign Currency Required Euro	Total Euro
	Million Rials	Rate	Equivalent in Euro		
<b>Fix Capital</b>	3,560,625	505,594	7,042,459	0	7,042,459
<b>Current Capital</b>	9,815,820	505,594	19,414,431	0	19,414,431
<b>Total Investment</b>	13,376,445	505,594	26,456,890	0	26,456,890

- Value of foreign equipment / machinery **0 Euro**
- Value of local equipment / machinery **4,133,751 Euro**
- Net present value (NPV): **7,609,057 Euro**
- Internal Rate of Return (IRR): **31.65%**
- Payback Period **6 years and 2 months equivalent to the year 1410.**

**General Information**

**11 - Project type : Establishment ☒ Expansion and completion ☐**

**12- Company Profile**

- Name (Legal / Natural persons): **Industry, Mine and Trade organization**
- Company's current activities: **Government services**

- Address: **Next to the Blood transfusion organization, Shahid Beheshti Blvd., Kermanshah**  
 - Tel: **08338239160** Fax: **08338239157**  
 E-mail: Web Site: **www.ksh.mimt.gov.ir**  
 - Company's legal structure:  
 Government ☒ Non-Governmental ☐ Public non-governmental ☐

## 1- Project's location:

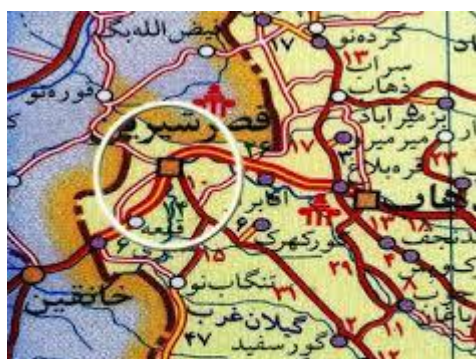
### 2-1- Province:



Kermanshah province is one of the western provinces of Iran. The capital of this province is the city of Kermanshah, which is one of the largest and most populated cities in the west of the country. Kermanshah, with a population of 946,651 people (according to the 2015 census), is the ninth most populous city in Iran. This city is of special importance due to its special geographical location on the communication route between Tehran and the western borders and also as an important cultural and historical center. Kermanshah province, having many natural and historical attractions, plays an important role in the country's tourism industry.

### 2-2- the County:

Qasr Shirin city is one of the border and strategic cities in the west of Kermanshah province and is located on the border of Iran and Iraq. The center of this city is the city of Qasr Shirin, which is of special importance due to its geographical and historical location. This city with a population of over 25,000 people (according



to the 2015 census) is considered one of the small but very important cities of Kermanshah province.

Due to its location on the western border of Iran, Qasr Shirin plays a vital role in trade and commerce between Iran and Iraq. The border bazaars and customs terminals of this city are very important as the country's economic gateways, and a significant amount of trade exchanges are carried out through this area. In addition, due to its geographical location, this city was considered one of the sensitive and strategic points during the imposed war between Iran and Iraq, and the traces and relics of the war can still be seen in this area.

Historically, Qasr Shirin has numerous and valuable antiquities that go back to different historical periods, especially the Sassanid era. Among these works, we can mention the historical palace of Qasr Shirin and Anahita Temple, both of which have been registered in the list of national heritage of Iran. These ancient buildings not only represent the past greatness and glory of this region, but also attract domestic and foreign tourists to Qasr Shirin city.

Qasr Shirin also has beautiful natural scenery and a mild climate that has made it one of the tourist destinations of Kermanshah province. The green groves and gardens of this city, along with flowing rivers and natural springs, provide a relaxing and pleasant environment for tourists.

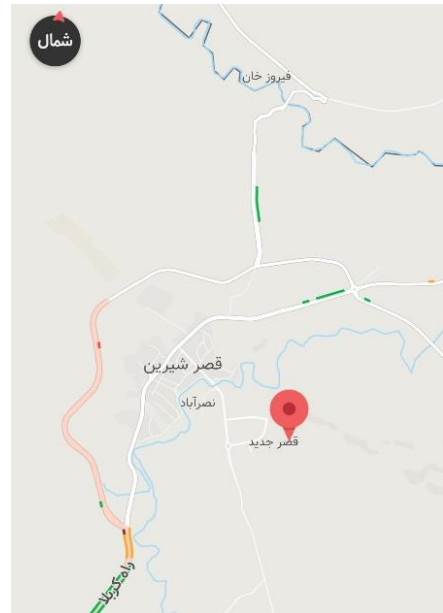
In general, Qasr Shirin city, with its strategic geographical position due to its proximity to the western borders, valuable historical monuments and beautiful natural landscapes, plays a prominent role in the economy, culture and history of the region and is considered one of the important and influential cities of Kermanshah province.

### **۲-۳- the project:**

Qasr Shirin Free Trade Zone is one of the best places for investment and development of various

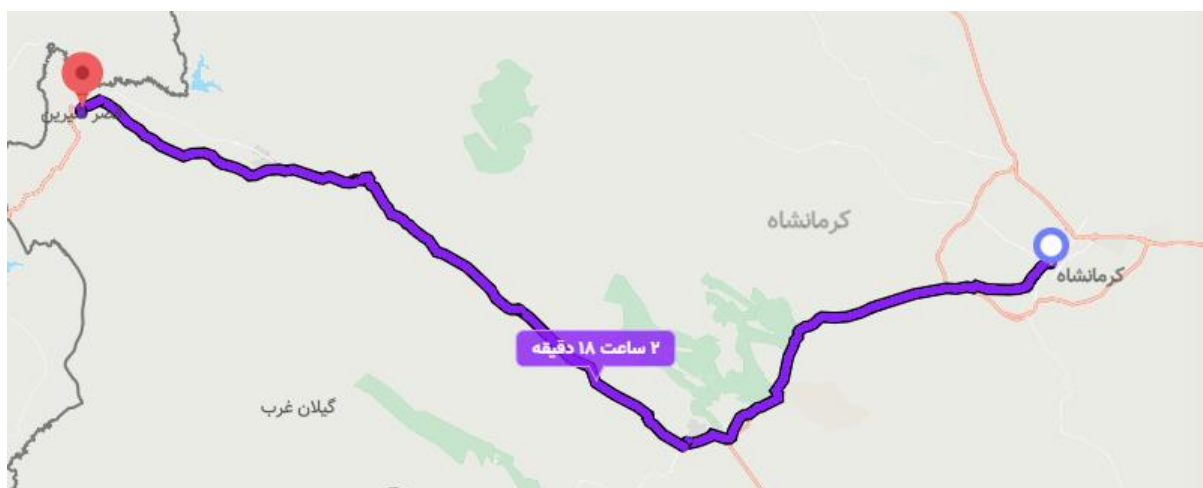


industries due to its strategic location near the border of Iran and Iraq and being on the main commercial routes. This area is particularly attractive for investors due to tax and customs exemptions that are applied in accordance with the laws of free trade zones. Also, proximity to international transportation networks, including major communication roads and border terminals, makes it easier for companies based in the region to access international markets.



In addition, the presence of skilled and specialized manpower in the region, complete infrastructure facilities including water, electricity, gas and telecommunication facilities, as well as the reasonable price of industrial land, make Qasr Shirin Free Zone an ideal place for building new production units and factories. By providing special facilities for investors and providing favorable conditions for the development of industrial and commercial activities, this area has become one of the important economic centers in the west of Iran.

Among the large and successful companies that are active and investing in this region, we can mention various companies in the food, chemical, and construction products industries, all of which have benefited from the special benefits of the free zone and play an important role in the growth and development of this region. By using tax exemptions and easy access to export markets, these companies have been able to achieve significant success and contribute to the economic development of the region. The image below shows the distance from the nearest railway station and airport, which are located in Kermanshah city, to the project site.



2-4-access to the infrastructures:

No.	Needed infrastructures	distance to the project	The supply infrastructures
1	water	0	Free trade zone
2	electricity	0	Free trade zone
3	gas	0	Free trade zone
4	Telecommunications	0	Free trade zone
5	High way	0	Free trade zone
6	Sub way	0	Free trade zone
7	airport	170km	Kermanshah International Airport
8	port	550km	Imam Khomeini Port
9	Rail way	160km	Kermanshah train station



## **2- Technical Specifications of plan:**

### **3-1 –product:**



The production plan includes the production of different types of steel sheets with different coatings. Using advanced technologies and in compliance with international standards, these sheets have high quality and good resistance against environmental factors and corrosion. The products of this project include steel sheets with different coatings such as zinc-coated steel sheets, which are also known as galvanized sheets, chrome-coated steel sheets, which have high strength and durability, and aluminum and zinc alloy coated steel sheets, which are a combination

of They have the properties of both metals. Also, these products include steel sheets covered with aluminum, which is of interest to many industries due to its light weight and high resistance to rust and heat. Cladding coated steel sheets are also part of the products of this design, which are more resistant to corrosive factors by using advanced technology. Tin-plated sheets also have a special place in these products, which show high resistance against rust and corrosion with tin coating. Finally, steel sheets with lead and bronze alloy coating are also among the other products of this design, which have unique properties and are suitable for use in special industries and special applications. In general, this production plan, by offering a wide range of steel sheets with different types of coatings, has the ability to meet the diverse needs of different industries, and



due to the high quality and variety of products, it can gain a special place in the domestic and international markets.

.3-2-project's requirements:

### **Steel sheet**

Steel sheet is one of the most important and widely used metal products in various industries. Today, most metal products are produced in the form of steel sheets, and each type of these sheets is designed and used for specific purposes and applications. These sheets are made of different materials and are usually produced through cold rolling or hot rolling processes. Each of these production methods gives special characteristics to steel sheets, which makes them used in different sectors of industry, construction and other areas.

Steel sheets have special physical and structural characteristics that are selected and used depending on different needs and applications. These sheets are one of the main components in many industrial and construction projects due to their strength, durability and ability to withstand pressure and different conditions. Also, different types of steel sheets are widely used in the production of various tools, machinery and equipment due to their unique characteristics.

### **Coated steel sheet**

One of the most important stages in the production of steel sheets is the coating stage. This process is done in order to protect the steel sheet against corrosion, rust and environmental damage, as well as to create a beautiful and attractive appearance on the surface of the sheet. The most important types of coated steel sheets are galvanized sheet, aluzinc sheet, colored sheet and tin-plated sheet.

Galvanized sheet can be introduced as the most important and widely used steel coated sheet. This type of sheet has a high resistance to corrosion and rust

due to having a coating layer of zinc metal. This coating layer not only protects the steel, but because of its special features, it is used in many industries. Galvanized sheet is widely used in various industries including construction, automotive, home appliance manufacturing and many other sectors.

The galvanizing process, which involves coating the steel sheet with zinc metal, protects the steel from corrosion due to the difference in electrical potential between the zinc metal and the iron. Zinc metal acts as a sacrificial metal, in the sense that it corrodes instead of iron when exposed to corrosive agents. This important feature makes the galvanized sheet very efficient and reliable in wet environments prone to rust.

In general, coated steel sheets are used in a wide range of applications and industries according to the type of coating and the specific characteristics of each one, and they play an important role in maintaining and increasing the useful life of structures and equipment.

#### Galvanized sheet production methods

In order to produce galvanized sheet, cold sheet with a certain thickness is first produced. Cold sheet is produced by acid washing and hot sheet rolling. The cold sheet has a smooth and polished surface and is suitable for covering in different ways. Several methods can be implemented to galvanize the cold sheet.

#### **Immersion method (Hot-Dip Galvanizing)**

The hot dip method is one of the oldest and most widely used methods of galvanizing steel sheets, which is widely used in various industries due to its high efficiency and the extraordinary resistance it gives to the sheets. In this method, after complete surface cleaning, including processes such as acid washing and fluxing, steel sheets are directly immersed in a bath of molten zinc at a temperature of about 450 degrees Celsius. This immersion causes the

molten zinc to adhere to and react with the surface of the steel, resulting in a uniform and continuous layer of zinc on the sheet.

This protective layer, due to the metallurgical bond between steel and zinc, simultaneously has favorable physical and chemical properties. Metallurgical bonding means that the zinc layer is not only mechanically sitting on the surface of the steel, but also combined with it and becomes part of its structure. This feature increases the sheet's resistance to corrosion and rust, even in harsh environmental conditions such as humid environments or environments containing corrosive chemicals. Also, hot-dipped galvanized sheets have a long lifespan due to their thick and resistant coating and are commonly used in construction, automotive industries, piping and many other industrial and building applications.

### **Electro-Galvanizing method**

The method of electrolytic galvanization or electrogalvanization is one of the modern and advanced methods for creating zinc coating on steel sheets, which is widely used in industries sensitive to high precision and beautiful appearance. In this method, the steel sheet is first well cleaned and prepared so that no contamination or rust remains on its surface. The sheet is then placed in an electrolytic bath that contains ionic solutions containing zinc metal.

By applying an electric current to this solution, zinc ions are attracted to the surface of the steel sheet and deposited on it. This deposit is formed as a thin, uniform and very smooth layer of zinc on the sheet. In the electrogalvanizing method, it is possible to precisely control the thickness of the zinc layer, which is usually less than the immersion method. Therefore, the sheets produced in this way are mostly used in less corrosive environments.

Among the other advantages of this method, we can mention the creation of a very smooth and shiny surface, which is widely used in the production of final products such as car parts, household appliances, and electronic devices due to

its appearance and high processability. This method is very popular in industries that require precise process control due to its high accuracy in coating thickness and quality.

### **Thermal spray method (Thermal Spraying)**

The thermal spray method is one of the advanced and specialized techniques for applying zinc coating on steel sheets, which is used in various industries due to its high flexibility in the process and the possibility of coating complex surfaces. In this method, zinc metal is first placed in the form of powder or wire in the thermal spray device. Then, using a powerful heat source, such as a flame or an electric arc, the zinc becomes molten and is immediately sprayed onto the surface of the steel sheet using a high-speed gas stream.

This thermal spraying process causes the molten zinc particles to adhere to the surface of the steel sheet and cool rapidly, resulting in a durable and continuous layer of zinc metal on the sheet. One of the main advantages of this method is the ability to precisely control the thickness and composition of the coating. In addition, because the thermal spray process can be performed in multiple layers, this method is very suitable for cases where there is a need to cover large surfaces or complex geometric shapes.

This method is especially used in industries that require wear, corrosion, and heat-resistant coatings, such as marine, petrochemical, and oil and gas industries. In addition, thermal spray allows the creation of composite and multilayer coatings that can add special properties such as high heat resistance or anti-friction properties to the steel sheet.

### **Dry galvanizing method**

Dry galvanizing is another method of coating steel sheets with zinc metal, which uses a combination of chemical and thermal processes to create the coating. In this method, after the necessary cleaning, the steel sheet is dipped in

a special solution that contains zinc metal compounds. This solution acts as a primary coating and prepares the surface of the sheet for the next steps.

After the sheet is coated with zinc solution, it is taken into high temperature furnaces. At this stage, under the influence of heat, zinc compounds start to react on the surface of the steel sheet and a thin and uniform layer of zinc is formed on the surface of the sheet. Due to the drying and heating process, this layer is very strong and resistant and can effectively protect the sheet from environmental factors such as moisture and corrosive chemicals.

Due to the high speed and simplicity of the process, the dry galvanizing method is often used in cases where there is a need for quick and economical production of galvanized sheets. Galvanized sheets in this way, due to their special characteristics, are mostly used in applications such as covering roofs, walls and light metal structures. This method is also considered as one of the cost-effective options in manufacturing industries due to less need for complex equipment and lower cost than some other methods.

### 3-2-1-Space and infrastructure required:

According to the beginning of land allocation in Qasr Shirin free zone, it is necessary to take action to get land suitable for the plan. Due to the lack of accurate pricing of this commercial-industrial free zone and only registering the request of various companies, taking into account the difference in the price of free zones of other provinces compared to the lands outside the free zone, the following prices have been estimated for Qasr Shirin Free Zone. is

Specifications of the plot					
the cost			Unit price (Rials)	area square ) (meter	Dimensions (meter) × (meter)
plural million ) (rials	needed (M.R.)	Expenses – incurred (M.R.)			
75,000	75,000	0	15,000,000	5,000	Land located in Qasr-e Shirin Free Zone

According to the land required for the plan and the measures taken to prepare Qasr Shirin Commercial-Industrial Free Zone, the following costs have been estimated for landscaping and construction.

total sum (m.r.)	required (M.R.)	expenses done (M.R.)	unit cost (riyal)	unit	amount of work	description
11,200	11,200	0	3,200,000	square meters	3,500	Leveling and excavation
22,000	22,000	0	40,000,000	square meters	550	wall painting
6,000	6,000	0	3,000,000,000	number	2	entrance door
8,000	8,000	0	8,000,000	square meters	1,000	green space
8,700	8,700	0	15,000,000	meters	580	Tabulation , - channeling
30,000	30,000	0	20,000,000	square meters	1,500	paving and asphalt
4,750	4,750	0	50,000,000	number	95	light
90,650	90,650	0	General Assembly (M.R.)			

Buildings in the plan					
plural (million riyals)	needed (M.R.)	expenses done (million rials)	unit price (riyal)	area (square meter)	description
500,000	500,000	0	200,000,000	2,500	Production hall and facilities
45,600	45,600	0	240,000,000	190	warehouse hall
136,000	136,000	0	170,000,000	800	Office building
8,500	8,500	0	170,000,000	50	guard building
690,100	690,100	0	-	3,540	General Assembly (M.R.)

### 3-2-2-Equipment and machinery:

The main machinery of this project includes uncoiler, welding machine, air jet, cooling tank and other equipment, most of which are available from domestic sources. These equipments are essential for the optimal production process and increasing productivity in the production line. Since the use of domestic machinery can help reduce foreign exchange costs and support the national industry, investment in this sector is of great importance. More detailed details of the investment required to provide this equipment are given.

The cost of machinery and equipment	
Required expenses (M.R.)	description
600,000	The machine for the complete production line of galvanized sheet
650,000	Full production line machine with chrome coating
650,000	Complete aluminum sheet production line machine
190,000	Other costs include value added tax (about 10 percent).
2,090,000	Total cost of machinery

### 3-2-3- Raw materials and intermediate components:

The main raw materials of this design are proportional to one year's nominal capacity of steel sheets, which are given in the table of materials and their proportions.



Specifications and cost of raw materials, auxiliary and packaging						
Annual cost (million Rials)	Cost per ton of material (M.Rials)	Consumption rate at 100% capacity	The annual production rate of the product in 100	Consumption factor per product unit	unit	description
Steel sheet with zinc coating (galvanized sheet)						
15,150,000	300	50,500	50,000	1	tone	Steel sheets in the form of strips in any desired length with a thickness of 4 to 16 mm
1,060,500	1,400	758		0.015	tone	Additives to the molten pool include zinc
143,000	Other cases					
16,353,500	Total amount (million Rials)					
Steel sheet with chrome coating						
15,150,000	300	50,500	50,000	1	tone	Steel sheets in the form of strips in any desired length with a thickness of 4 to 16 mm
1,318,050	1,740	758		0.015	tone	Additives to the molten pool include chromium
146,000	Other cases					
16,614,050	Total amount (million Rials)					
Steel sheet with aluminum coating						
15,150,000	300	50,500	50,000	1	tone	Steel sheets in the form of strips in any desired length with a thickness of 4 to 16 mm
795,375	1,050	758		0.015	tone	Additives to the molten pool include aluminum
141,000	Other cases					
16,086,375	Total amount (million Rials)					
49,053,925	The total cost of raw materials (million Rials)					

### 3-2-4- 3-2-4- Cost of energy consumption:

Estimation of required energy									
Annual consumption cost (m.r.)	The cost of each consumption unit is in Rials	Annual consumption	Number of working days per year	Work shift per day	Working hours per day	Amount of consumption	unit	description	row
12,849	12,000	1,070,784	330	3	8	135	kw/h	electricity	1
6,273	20,000	313,632	330	3	8	40	m2/h	gas	2
859	70,000	12,276	330	3	-	12	m3/day	water	3
28	7,000	3,960	330	-	-	12	litr/day	Diesel fuel	4
600	50,000,000	-	-	-	-	12	monthly	Communication	5
119	30,000	3,960	330	-	-	12	litr/day	gasoline	6
20,728	total (m.r.)								

### 3-2-5-management and human resources:

In this plan, the assumption of shift work is 3 8-hour work shifts in 330 working days per year. Based on this, the manpower required in different departments has been estimated as follows.

Salaries and wages of administrative personnel						
Total annual salary (million riyals)	Monthly salary (riyals / per person)	The total number of personnel	personnel	Number of work shifts	position	row
10,200	850,000,000	1	1	1	CEO	1
14,400	600,000,000	2	2	1	Financial, administrative and sales manager	2
6,120	170,000,000	3	1	3	Financial, administrative and sales personnel	3
3,360	140,000,000	2	2	1	the secretary	4
1,320	110,000,000	1	1	1	service worker	5
7,920	110,000,000	6	2	3	guard	6
43,320		15	plural			
30,120	Job benefits. Insurance and 70% bonus					
73,440	The total number					

Salaries and wages of production personnel							
Total annual salary (million riyals)	Monthly salary (riyals/per person)	The total number of personnel	people	Number of work shifts	Skill level	position	row
6,000	500,000,000	1	1	1	specialist	production manager	1
16,200	450,000,000	3	1	3	specialist	shift supervisor	2
12,600	350,000,000	3	1	3	specialist	Quality control engineer	3
3,600	25,000,000	12	4	3	skilled	Quality control engineer	4
37,800	150,000,000	21	7	3	unskilled	simple worker	5
14,400	200,000,000	6	2	3	specialist	Installation technical technician	6
18,000	250,000,000	6	2	3	skilled	storekeeper	7
5,400	150,000,000	3	1	3	unskilled	the driver	8
114,000		55	plural				
114,000	Job benefits and insurance and bonus (100%)						
228,000	total (m.r.)						

- Number of skilled personnel required: 24
- number of non- skilled personnel required:33
- number of expert personnel required: 13

### 3- Ownership and legal permission:

#### 4-1- ownership of land:

In this plan, the purchase of land is considered as part of the initial costs and from the initial location.

#### 4-2- Intellectual property and incentives:

Considering that the project will be implemented in Qasr Shirin Free Trade Zone, there will be no problem in providing infrastructure, permits and branching rights.

#### 4-3-legal permission:

Due to the fact that no license has been received for the said project, the list of required licenses for the project is presented below.

The list of unobtained licenses and the estimated time required to obtain a license			
Estimate the required time	License specifications	Issuing organization	License name
a month	Production of steel sheet with zinc coating (galvanized sheet) with a nominal capacity of 50,000 tons per year	Organization of Industry, Mining and Trade of Kermanshah Province	Establishment license
	Production of chrome coated steel sheet with a nominal capacity of 50,000 tons per year		
	Production of steel sheet coated with aluminum alloy with a nominal capacity of 50,000 tons per year		
Simultaneously with the trial operation	Production of steel sheet with zinc coating (galvanized sheet) with a nominal capacity of 50,000 tons per year	Organization of Industry, Mining and Trade of Kermanshah Province	butterfly Exploitation
	Production of chrome coated steel sheet with a nominal capacity of 50,000 tons per year		
	Production of steel sheet coated with aluminum alloy with a nominal capacity of 50,000 tons per year		
a month	According to the construction specifications mentioned in the plan	Free commercial and industrial zones	The end of the building

#### **4- study and Competition:**

The steel industry is one of the industries that has shown the ability to continue exporting and growing during the embargo period, because most of the production inputs of this industry are provided within the country and we have advantages in these fields such as cheap energy and manpower. Considering that the neighboring countries are mainly consumers of steel, there is an export potential and a suitable regional market for this product. Almost indigenous technology, and relatively cheap and expert manpower, have all made Iran rank among the top 10 countries in the world in the field of steel production. The exchange rate is also one of the other effective factors in the advantage of steel production. The production of more than 30 million tons of steel and the high growth of production in recent years, despite severe sanctions, indicate the high potential of this industry and the lack of need for our country to create new production lines and factories. However, the increase in the price of energy and the uncertainty of its price for the coming years can be a serious challenge for this industry. In addition, there are other risks such as gas and electricity cuts in high consumption seasons to maintain their urban consumption and changes in tax laws that can affect the performance of this industry and should be put into practice.

The opinion of the country's policymakers and planners for the steel industry in the high-level documents and the country's planning is a confirmation of the importance of this industry. Steel is very important as one of the central industries in development and progress, both in Iran and globally; So that after the oil and gas industry, it is known as the largest industry in the world. This wide importance has caused countries to pay special attention to this industry and improving its indicators is always on the agenda of governments. Steel coated sheets are also used in various industries such as making household appliances, various heating and cooling devices, laundry,

electricity, computer and electronics, automobile manufacturing and industries that require painting, cutting and shaping of metal.

#### Manufacturers of coated sheets

Among the most important factories producing coated sheets in Iran, we can mention Mobarakeh, Amirkabir Kashan, Haft Almas, West Asia and Taraz Shahrekord factories. With the beginning of the Russian-Ukrainian war in 1401, significant risks were created in the financial markets, which led to an increase in prices in the commodity markets. However, prices fell last year due to a decline in global demand, especially in the world's major economies. In the first two months of this year, with the return of economic activities in important countries of the world, the prices began to rise again. According to experts, it can be said that the current prices in the global commodity markets are relatively stable. Although the sales rate of domestic products is not directly related to global prices, the price of similar sheets imported inside the country affects the pricing of products produced by companies. However, the possibility of an increase in the exchange rate increases the profitability of the company. Due to the slow increase in the global prices of basic metals and the fundamental increase in the price of the dollar, the operating conditions of companies have improved and the profitability of this industry is expected to be more promising in the coming years.

#### **5-1- Introduce target market:**

As one of the main pillars of the country's economic development, the steel industry plays a significant role in meeting domestic needs and reducing dependence on imports. With rich natural resources such as iron ore, skilled manpower and relatively cheap energy, Iran has a significant competitive advantage in steel production. Due to the significant growth of the construction and automobile industry, the domestic demand for steel and its derivatives is

continuously increasing. This trend has made the domestic market one of the most important sales targets in this project.

Iran has a brilliant history in the field of steel exports, due to the location of our country in the Middle East region and the growing need for steel in the region, as well as the increase in constructions in the housing sector and infrastructure projects, along with the expansion of the automobile industry, there is a need for steel products such as steel sheets, rebar, beams and It has made other steel derivatives more prominent in the entire region.

Finally, paying attention to domestic and foreign needs and macro policies of the country to support production doubles the importance of focusing on export goods. Steel production using the latest technologies can help meet domestic needs and is an important step towards the country's industrial self-sufficiency and exports.

## 5- Financial projection:

The plan has not made physical progress.

## 6- Operational plan and project implementation schedule:

### Project implementation schedule

Project implementation schedule forecast																		
Third Year						Second Year						First Year						description
1 2	1 0	8	6	4	2	1 2	1 0	8	6	4	2	1 2	1 0	8	6	4	2	
																		Carrying out investment studies
																		Obtaining the necessary permits and taking action to finance the project
																		Providing engineering services
																		Land purchase and preparation
																		Selection of the project manager (contractors)
																		Workshop equipment
																		Construction and landscaping operations
																		Ordering, buying and transporting machinery
																		Installation and commissioning of machines
																		Establishments
																		Recruitment and training of employees
																		Unforeseen delays
																		Experimental production



## 8-1- The cost estimate:

### The cost estimate

Cost (million Rials)	subject	row
3,560,625	Total fixed investment costs	1
9,815,820	Operating expenses (working capital)	2
13,376,445	Total investment	

### Fixed investment

Cost (million Rials)	subject	row
75,000	Land purchase cost	1
90,650	Landscaping and land improvement	2
690,100	Civil operations and construction of buildings	3
2,090,000	Production machines and equipment	4
230,000	Service and accessory equipment	5
60,000	Vehicles	6
323,575	Unforeseen expenses (10% of expenses)	7
3,559,325	Total fixed investment cost	
300	Pre-investment studies	1
1,000	Project management and organization	2
3,560,625	Total investment costs	

### Estimating production costs

Cost (million Rials)	subject		row
Current costs			
49,053,925	Raw materials		1
211,008	Manpower		2
1,413,900	Marketing (excluding human resources)		3
20,728	energy	Other current expenses	4
3,186,428	Miscellaneous and unpredictable		
هزینه های ثابت			
90,432	Manpower		5
104,714	Depreciation cost		6
110,979	Repairs and maintenance	Other fixed costs	7
7,289	Fixed asset insurance		
208,700	plural		

### Estimation of working capital

Cost (million Rials)	day	subject	row
4,589,599	30	Total inventory	1
4,979,288	30	Accounts receivable	2
271,864	30	cash balance	3
24,931	30	Accounts Payable	4
<b>9,815,820</b>		Total working capital	

## 8-2Income estimation:

In the table below, the plan's income is estimated in the first five years, assuming a practical capacity of 90%.

year 5	year 4	year 3	year 2	Sum of the year 1	Season4	Season3	Season2	Season1	Selling price (million Rials/ton)	description	row
100%	100%	90%	80%	70%	25%	25%	25%	25%			
21,330,000	21,330,000	19,197,000	17,064,000	14,931,000	3,732,750	3,732,750	3,732,750	3,732,750	474	Steel sheet with zinc coating (galvanized sheet)	1
30,015,000	30,015,000	27,013,500	24,012,000	21,010,500	5,252,625	5,252,625	5,252,625	5,252,625	667	Steel sheet with chrome coating	2
19,350,000	19,350,000	17,415,000	15,480,000	13,545,000	3,386,250	3,386,250	3,386,250	3,386,250	430	Steel sheet with aluminum coating	3
70,695,000	70,695,000	63,625,500	56,556,000	49,486,500	12,371,625	12,371,625	12,371,625	12,371,625	Total sales (million Rials)		

### 8-3-Duration of project operation:

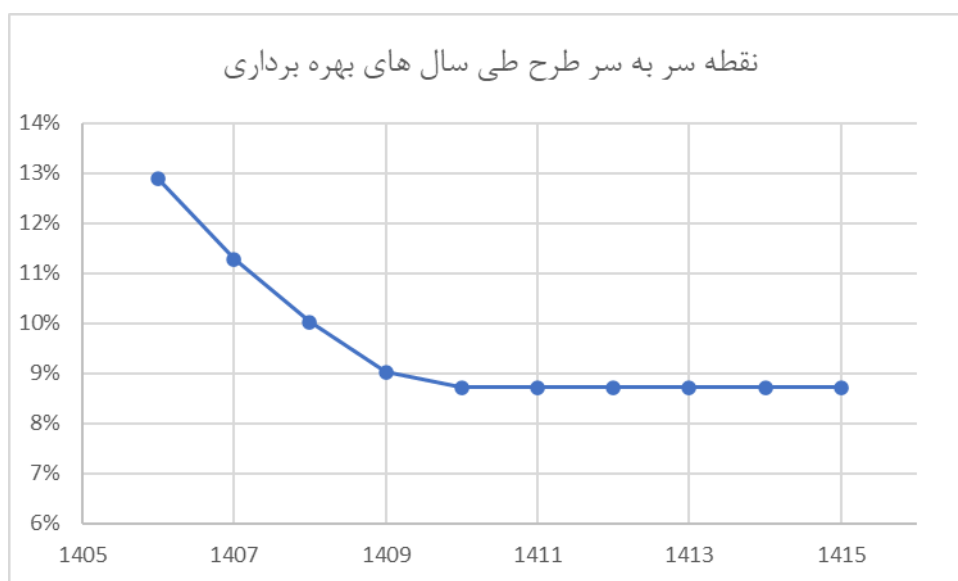
According to the type of project, its life is estimated to be 10 years

### 8-4-Break- even analysis:

The end-to-end analysis of the design is based on the calculations of the Comfar software based on the information provided as follows

Break- even ratio (percentage)	year
13%	1406
11%	1407
10%	1408
9%	1409
9%	1410
9%	1411
9%	1412
9%	1413
9%	1414
9%	1415

According to the table above, the break-even ratio shows us how much of the planned production volume must be achieved in each of the production years so that the project can cover its fixed costs in that year, in a way that the project's costs and revenues break even in that year. As is also clear in the chart below, this percentage of production in the early years was higher because the company had not yet reached its full production capacity, and as practical production approaches full production capacity in subsequent years, this ratio will decrease. In a way that from 1409 onwards, this percentage will be equal to 9% of the total production, equivalent to 13,500 tons.



## 8-5- Cost-Benefit Analysis:

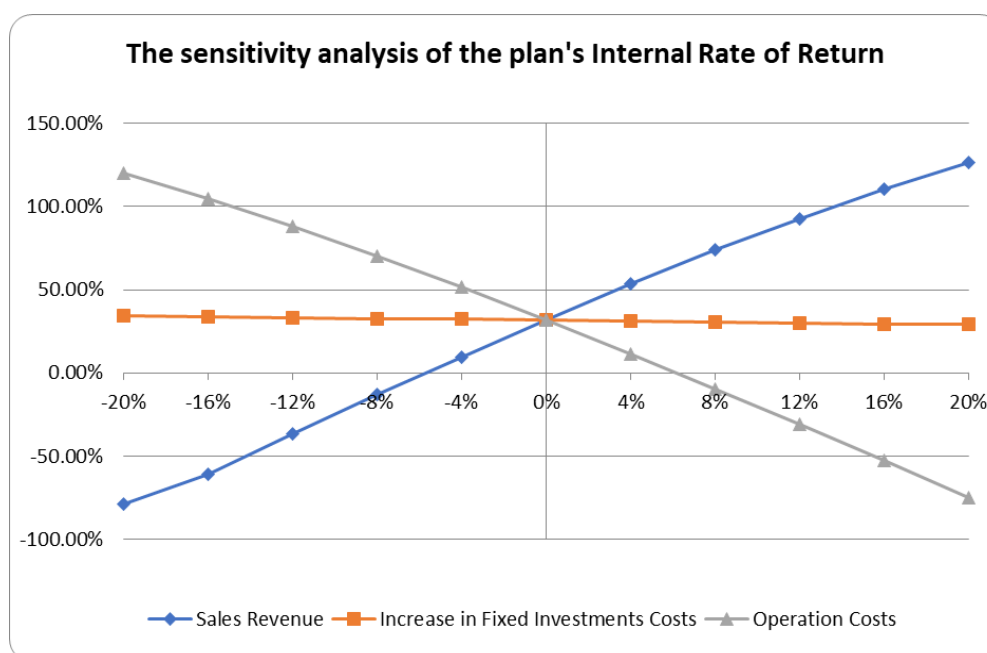
3,847,094	Net Present Value NPV
31.65%	IRR internal rate of return
185,185,348	Present value of total revenue for the implementation and operation period
181,338,254	Present value of total Costs for the implementation and operation period
1.05	Benefit-cost ratio

Financial indicators in the plan					
1410	1409	1408	1407	1406	Fiscal year ending
5.70	5.68	5.62	5.54	5.44	Net profit on sales (percentage)
4.89	4.89	4.76	4.60	4.42	Ratio of sales to total capital
0.06	0.05	0.04	0.04	-0.09	The ratio of net cash flows to total sales
6.24	6.24	6.24	6.24	6.24	The ratio of profit margin to sales revenue

## 8-6- Sensitivity analysis of IRR:

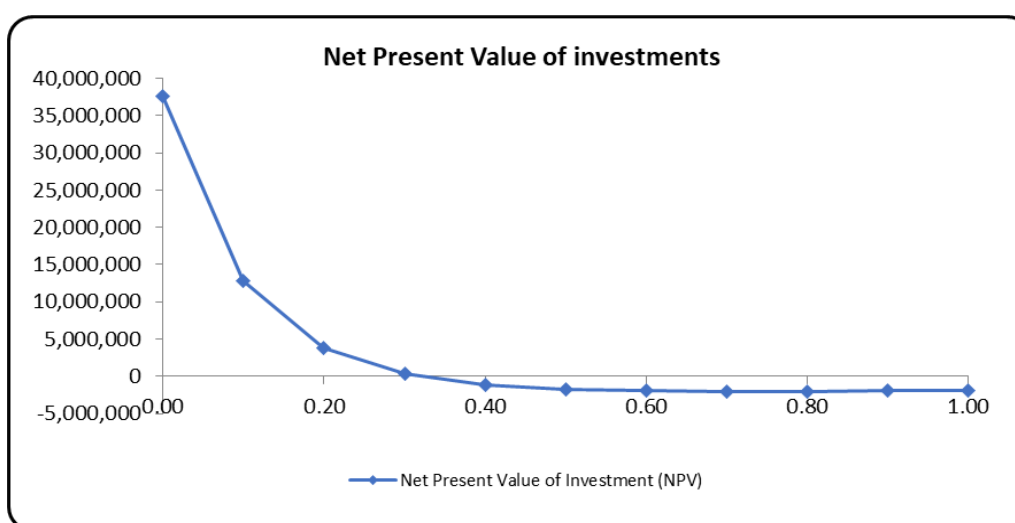
Sensitivity analysis table of internal rate of return

Operating expenses	Increase in fixed assets	Sales revenue	changes
120.10%	34.70%	-79.00%	-20%
104.68%	34.04%	-60.65%	-16%
88.17%	33.40%	-36.50%	-12%
70.47%	32.79%	-13.26%	-8%
51.56%	32.21%	9.30%	-4%
31.65%	31.65%	31.65%	0%
11.17%	31.10%	53.32%	4%
-9.48%	30.58%	73.76%	8%
-30.60%	30.08%	92.76%	12%
-52.54%	29.60%	110.37%	16%
-74.93%	29.13%	126.74%	20%



## Sensitivity analysis of net present value of investment

Fluctuations in NPV due to changes in the discount rate	
Discount rate	Net present value of all capital NPV
0%	37,579,239
10%	12,753,096
20%	3,847,094
30%	335,225
40%	-1,129,951
50%	-1,745,612
60%	-1,983,979
70%	-2,046,987
80%	-2,026,806
90%	-1,967,688
100%	-1,891,674



### 8-7- Summarize table:

#### "Summary of economic issues"

Nominal capacity and its unit	The name of the manufactured product	The exact title of the activity with the mention of the code (ISIC)	Type of activity
150 thousand tons	Coated steel sheet	Steel sheet with zinc coating (galvanized sheet) 2710512357	productive
		Steel sheet with chrome coating 2710512358	
		Aluminum coated steel sheet 2710512360	
Manpower required	Annual working capital (million riyals)	Total fixed investment (million riyals)	The duration of the implementation period
70	9,815,820	3,560,625	3 years
B/C* benefit-cost ratio	Submitted by the applicant (million riyals)	Net present value of NPV (million riyals)	IRR internal rate of return
1.05	14,492,983	3,847,094	31.65%

### **8-8 Estimation of exchange rate changes during the project implementation period:**

As explained in detail in the previous explanation, exchange rate changes during the implementation period will not affect the project. Because all production needs will be met from the domestic market, and the sale of products will be carried out entirely in the domestic market, considering domestic needs and statistics provided from exports in previous years. Therefore, exchange rate fluctuations will not have any connection with the implementation processes and performance of the project during this period.

### **9-Capital needs, the supply and guarantees method:**

#### **9-1- Foreign currency needed:**

The plan does not require foreign investment

#### **9-2- The Way of participation and finance method:**

The location of the required investment is considered from the applicant's place of origin.

#### **9-3- Payback period:**

The investment return period of the plan will be 6 years and 2 months equivalent to the year 1410.

### **10- Incentives, features and advantages of project:**

The location of the project in the Qasr Shirin Free Zone will provide the benefits of the free commercial-industrial zone. Establishing this project in the free zone will enable the development of subsequent phases with the aim of exporting. It will also provide the project with the opportunity to benefit from tax exemptions and import incentives during the operation phase. The existence



of upstream documents such as the 20-year vision and the Seventh Development Plan, which target the growth of this industry, will further improve the production chain and sales of this project's products in the coming years.