

Engineering Services

CA-2021-01-01



ARA CO

<https://araco.ir>

Introduction

Dr. Ralph Speth, CEO of Jaguar Automotive Group and Land Rover Group, who also has a track record at BMW, talks about the importance of good design: "Whenever you think you have spent a lot on a good design, you need to think about the huge costs that a bad (cheap) design imposes on your company."

With this introduction, which highlights the importance of good design in reducing the costs of companies and industrial organizations, we will introduce Araco.

Azarakhsh Rail Aria-Araco Company has started its activity in 2010. By using experienced managers and skilled experts, we try to contribute to the development of design knowledge and increase the technical capacity of Iranian industries by providing technically and managerially distinct services. Our approach to achieving this is to have a scientific and systematic approach to issues while taking into account the implementation aspects of each project. This is one of the important differences between us and companies that do reverse engineering projects, product design, and simulation only in an academic way and have no executive work experience, and are not familiar with optimal production methods.

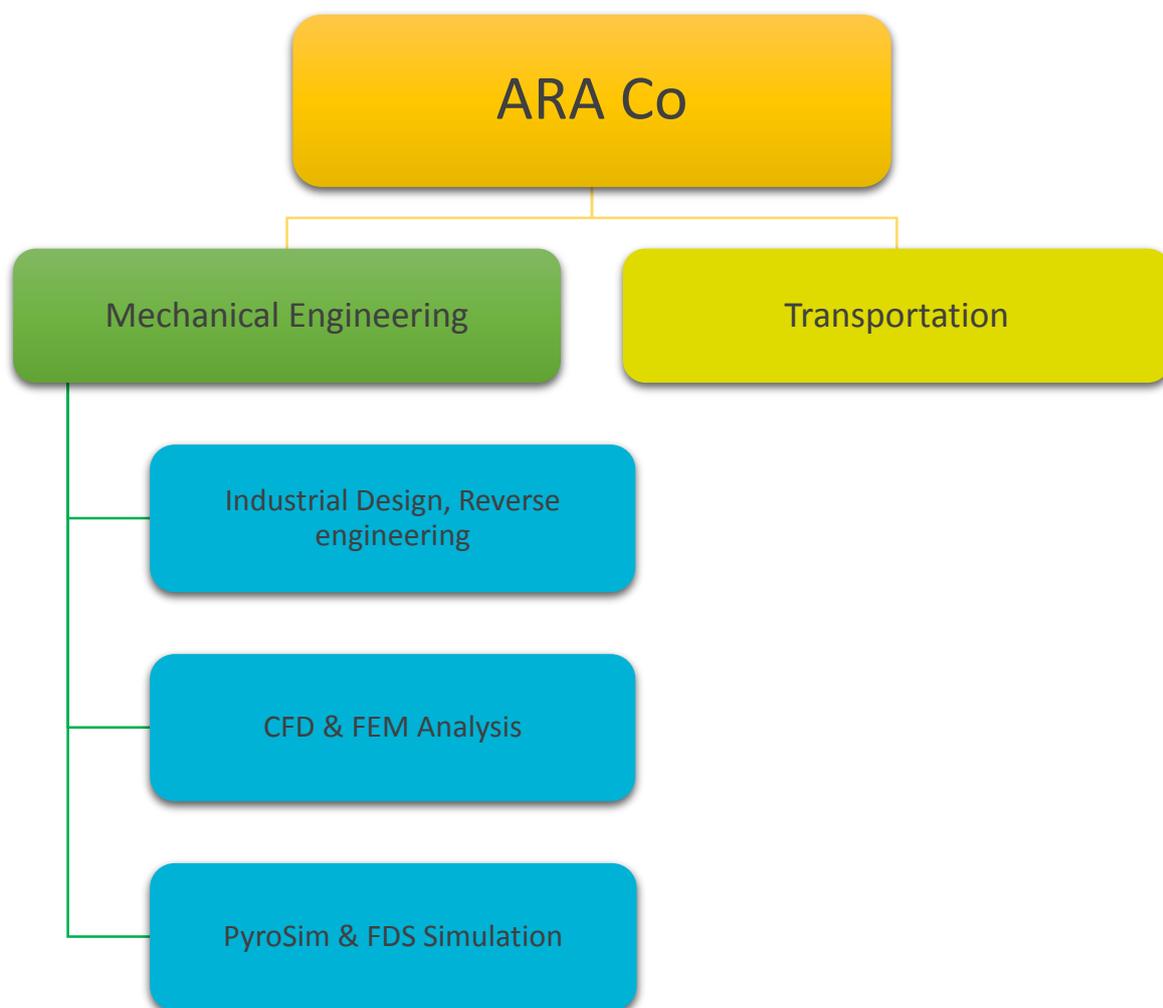
Applying a systemic approach requires a knowledge-based as well as pragmatic organization. That is why we at Araco are working to increase the organization's capabilities in these two areas. In product design and reverse engineering of equipment and machinery, considering the customer's needs and understanding their demands is one of the main priorities of all managers and staff of Araco. Also, special attention to lean production, reducing production costs, and the environment is considered a moral obligation in all Araco projects.

Our values

- ✓ Synchronizing our services with the development of industries and reducing the unemployment rate in Iran
- ✓ Commitment to quality and perfection
- ✓ Respect to customer
- ✓ Attention to the environment and nature

Why Araco?

In Araco, the sale and contract are not the ends, but the beginning of the commitment. We do our best to complete customer projects in the shortest possible time, but in the meantime, we will not sacrifice quality. It has been proven to us that apart from the ethical commitment to quality if all its dimensions are not carefully considered when implementing a project, we should spend more time on corrections and changes. For this reason, at the beginning of each new project and contract, taking into account all the items, including the time required to apply the changes desired by the employer, a Gantt chart is defined and we try to be committed to our schedule.



3D Modeling, Industrial design and Reverse engineering

Lean production and economic prosperity are among the things that have a great impact on the development of countries. In the modern age, economic prosperity is not necessarily related to having natural resources such as oil and gas and gold and silver. Rather, it is the development of a country's industry that can help improve the conditions of its people. For the development of the industry, it is necessary to pay special attention to localization and domestic production. For this reason, many companies are thinking about reverse engineering or designing their own parts, devices, machines and production lines.

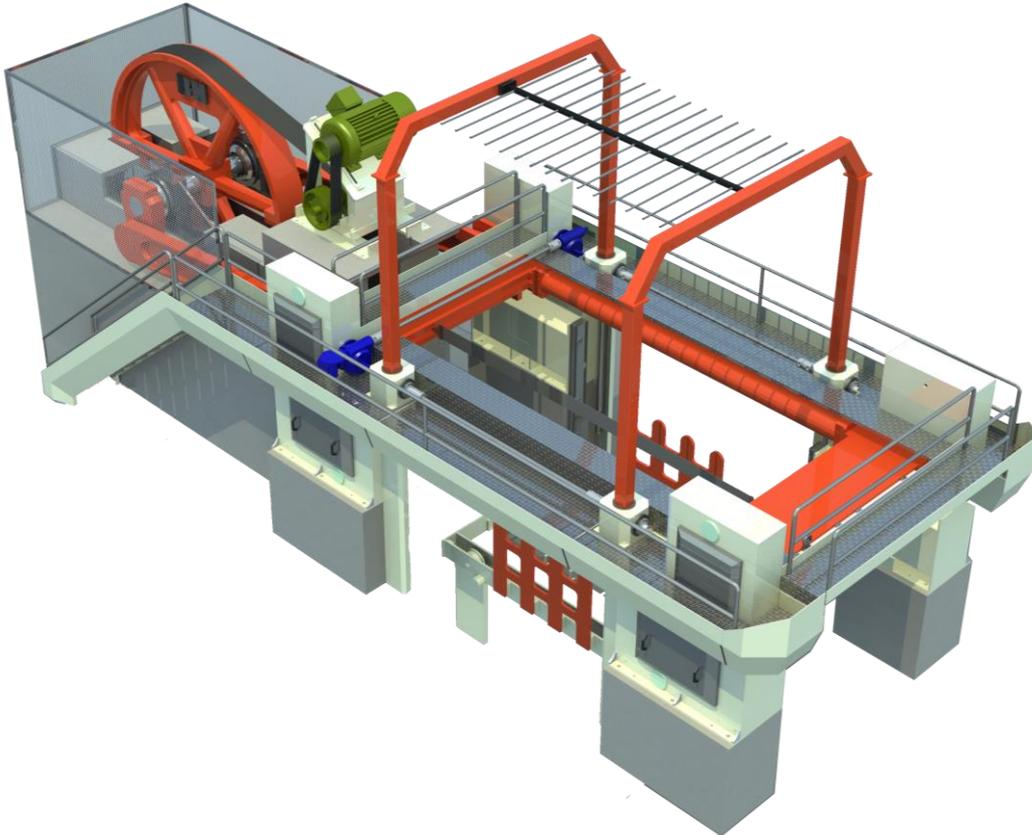


For reverse engineering and product design, in addition to having the appropriate knowledge and using computer-aided design software is necessary with production processes, selection of materials and sciences such as mechanical engineering, electrical engineering, control, fluid mechanics Etc.

In the process of product design and production, the use of software such as SolidWorks increases the speed of design, and improves the accuracy of production. This is why the use of Cad software such as SolidWorks and Catia is increasing every day.

Solidworks design and modeling services

We have accomplished 3D modeling and Solidworks projects as a freelancer for UK, Germany, Canada, Italy, Sweden, Spain, Russia, Qatar, Australia, Oman, Tajikistan, Kuwait, Iraq, Armenia, Georgia, and other countries.



ARA Co engineering team with a great background in Solidworks software and industrial projects is ready to handle worldwide Solidworks project for many countries.

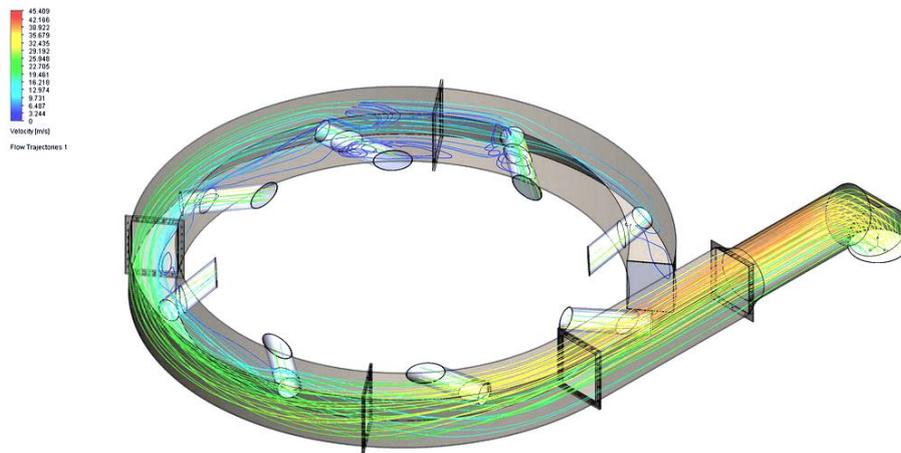
Our fields of activity in this section are:

- 3D Modeling Project by Solidworks
- Solidworks Sheet metal project
- Solidworks Structure and weldment project
- Reverse Engineering
- Industrial design Project
- Industrial and Product Rendering

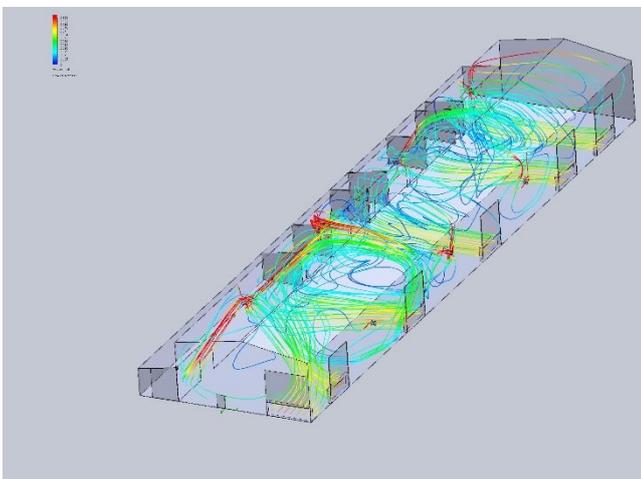
CFD and FEM Analysis

Nowadays, in many companies, before manufacturing of a new product or trouble shooting current process, a thorough analysis is performed on the entire system. In these analyses with the wide range, including static analysis, dynamics, vibrations, heat transfer and fluid simulation, the final three-dimensional model, can be examined under working conditions.

CFD and FEM analysis will reduce the cost of prototyping, and risk of problems in the current systems. The remarkable aspect about simulations, is the cost, which is much lower than the costs, resulting from damage to the system or try and error methods. CFD simulation is now popular among HVAC companies to check ventilation design.



We have a specialized team for CFD & FEM, who are experts in analysis and also familiar with the concept of many industries. These capability help us to evaluate the basic simulations, and present the most realistic analysis, which is also based on experience.



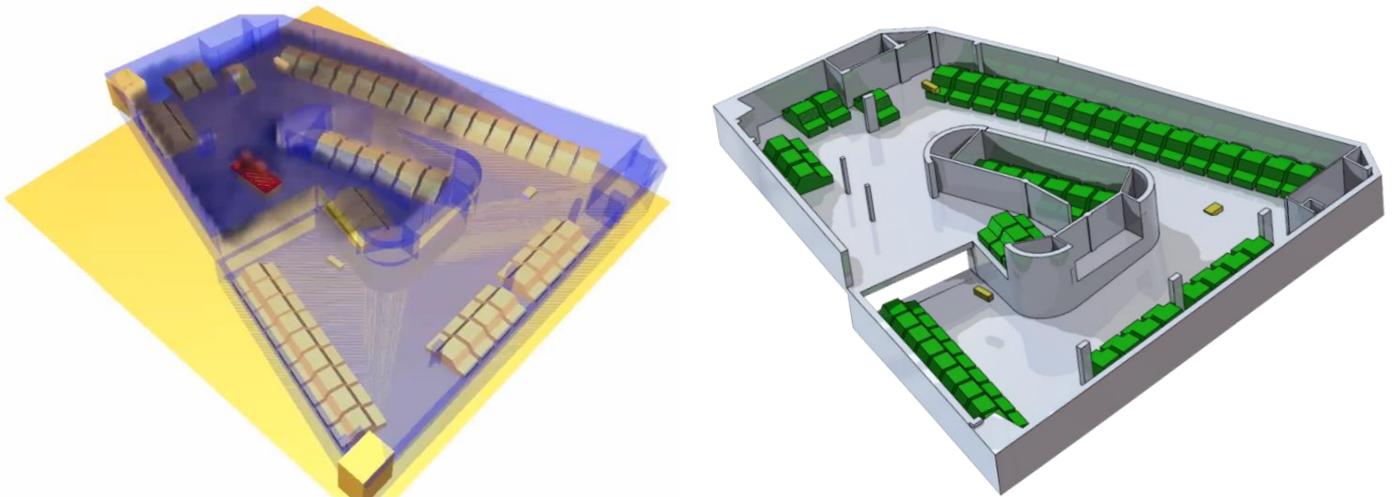
PyroSim and FDS Simulations

PyroSim is a graphical user interface for the Fire Dynamics Simulator (FDS). PyroSim helps companies to create and manage the details of complex fire models.

PyroSim and FDS are both using as main softwares to simulate the fire reaction in different environments like Building, parking lot, Subway, Tunnel, Cinema, Commercial office complex and ...

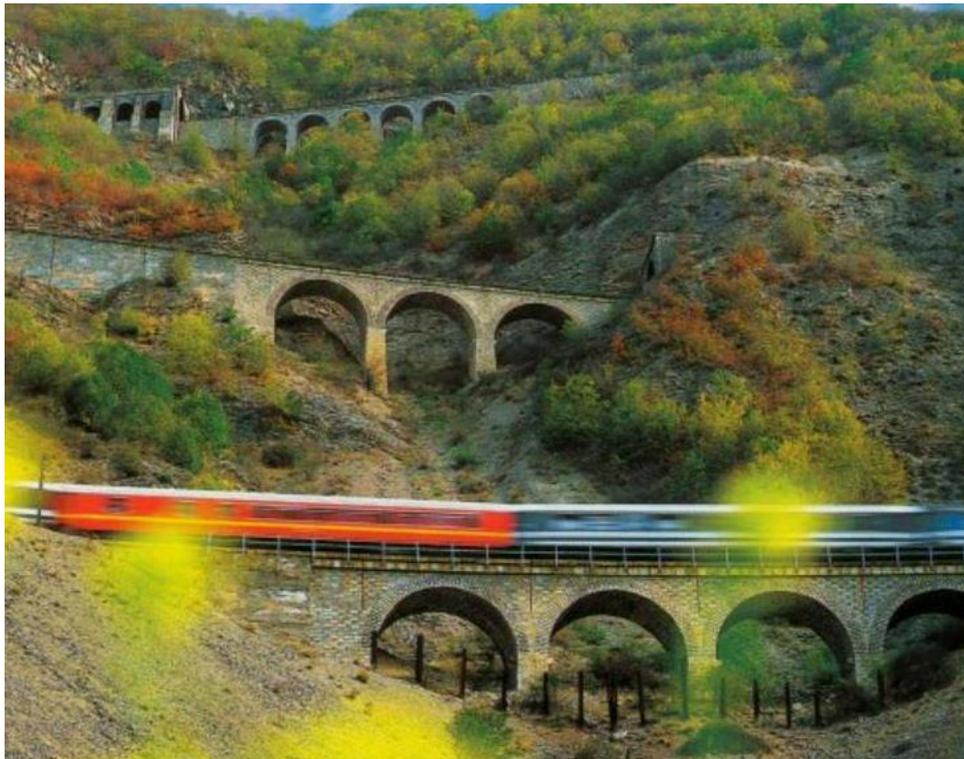
We can define smoke detectors and sprinklers in 3D model, in order to examine the current design in case of fire with both softwares.

Meanwhile it is possible to link PyroSim results with Pathfinder software which is advanced movement simulation combined with high-quality 3-D animated results, gives reliable answers.



Transportation Services

Railway transport occupies a significant role in the transport system of a country because the development of trade, industry and commerce of a country largely depends on the development of railways. Specific energy consumption, environmental pollution, noise pollution and accidents in rail transportation is far lower than road and air transportation, which fit this industry is as green transport.



ARA CO staff consists of highly qualified specialists, having several patents especially in the field of high-speed rail, electric and communication with companies, associations and international and local suppliers, has the potential to consulting and solutions in the railway industry especially in the field of railway electrification in Iran.

The company is active in all three areas of expertise rail transportation, in the fields of infrastructure, fleet and operation and provides engineering services in the development of functional and technical specifications, systems and methods for monitoring and equipment status display, particularly ways to increase the effectiveness, efficiency and productivity and

cost reduction patterns and the economic projects. Araco, is also on the list of suppliers for Tehran Metro Company.

Chairman of the company (Dr. Abbas Ghorbanalibeik), for thirty years has been involved in high-tech and service areas, especially nearly 20 years he has been involved in the Islamic Republic of Iran Railways, with plans and actions to Increase the efficiency of equipment and productivity and localization of the component, has managed to create more than one billion dollars in foreign direct saving and Several billion dollars will make fuel savings.

Electric project of Tehran-Mashhad railway, began during the tenure of Deputy International Plans and Affairs in 82 years. The obtaining regulatory approvals of the Management and Planning Organization, and the budget of the Parliament, held an international tender worth about one billion euros, with the participation of local firms and companies such as Siemens and Alstom. Also before holding the tender proof priority of Electrification of this route to build high-speed railway, on the other hand the proposed model to use wide trains bus, had a major role in the economy of the project, so that the implementation of the Passenger rail expansion project was welcomed by business organizations, with the BOT method for the first time on this track. Finally, this process led to the electrical contract signed, supply fleet and tapping on BOT.



The company's efforts in moving the electric railway has prepared the ground for settling large investors to participate in BOT projects in the field of rail with consortium formed double-track and Tehran - Tabriz electric railway with a speed of 250 kilometers per hour which was adopted at the Cabinet meeting. The formation of a consortium to build high-speed of railway Tehran-Qom with speed of 350 kilometers per hour, is ARA Co's success in attracting other sources of funding to railways.

Equipment for Railways and Metro

Araco, as Germany's Systech company representative in Iran is prepared to supply the equipment of railway stations and metro (from prestigious brands such as Siemens, Liebherr, Alstom, etc.) in the following fields with competitive price and good delivery time.

The equipment supplied in the field of railway and subway are as follows:

Electrical and control components and equipment

Signaling equipment

Needle machines and equipment line

Wagon and locomotive brake system equipment

Wagon and Tran set air conditioning equipment

Representative

Araco has been resident representative in Russia, in addition to having a close relationship with MDE Sweden, has the exclusive agent of Canada's Erafeat in the field of transportation safety.

ARA Co acts as the exclusive agent of Asia- Kavoshcom fleet management systems in the field of rail transportation.

In the field of railway and subway equipment suppliers, Araco is Systech's exclusive representative in Iran.

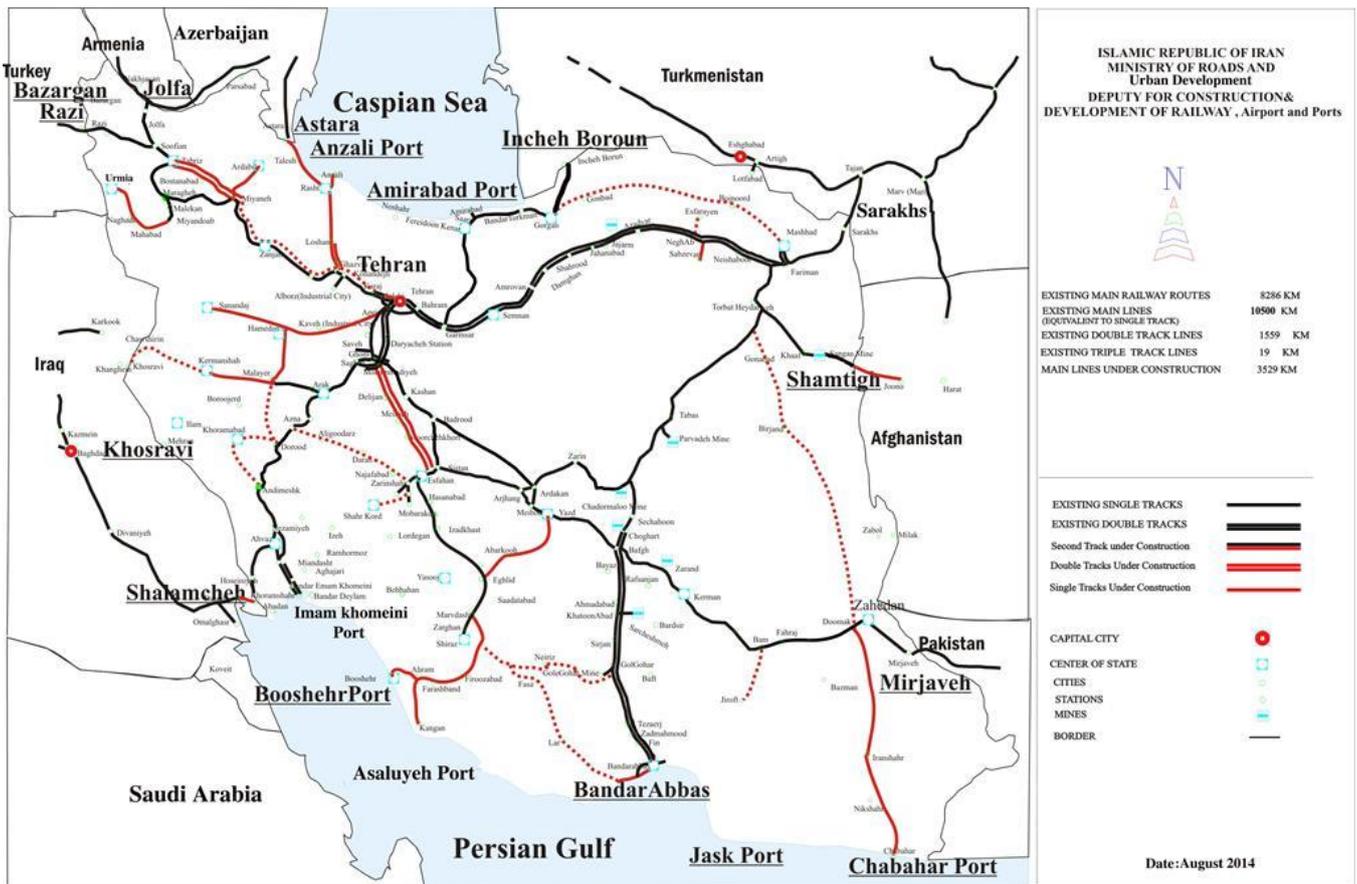
Activities and Projects

- ✓ Pre-feasibility studies on two lines and electrification of railway Tehran - Tabriz
- Feasibility studies for railway electrification of Tehran Razi
- Studies electrification effects on the increasing capacity of the Dorud - Andimeshk
- Studies investigating the derailment accident Dorud - Andimesh (in the contract)
- Tunnel ventilation design and simulation studies for the construction of new railway track Dorud - Khorramabad (in implementation)
- ✓ Formed a consortium to build diesel locomotives with locomotive platform made available
- ✓ 3D modeling and static analysis chassis of the Turbo Train
- ✓ Simulation and aerodynamic analysis of airflow on the body of the train
- ✓ 3D modeling and stress analysis Y32 bogies
- ✓ Offer wind turbines with rail equipment with power of 1 to 5.2 megawatts, with the price of 75% of Chinese, the Department of Energy
- ✓ Formed a partnership and providing design and construction proposals of luxury wagons with wagons available platform in cooperation with Italian company
- ✓ Consortium formed for two lines and electrification of the existing railway Tehran - Tabriz, at a speed of 250 kilometers per hour in the form of BOT, and a member of five companies
- ✓ Formed a consortium to build high-speed railway Tehran - Qom, at a speed of 350 kilometers per hour in the form of BOT and member of four companies with investment bank
- ✓ Consortium formed into diesel locomotives to electric

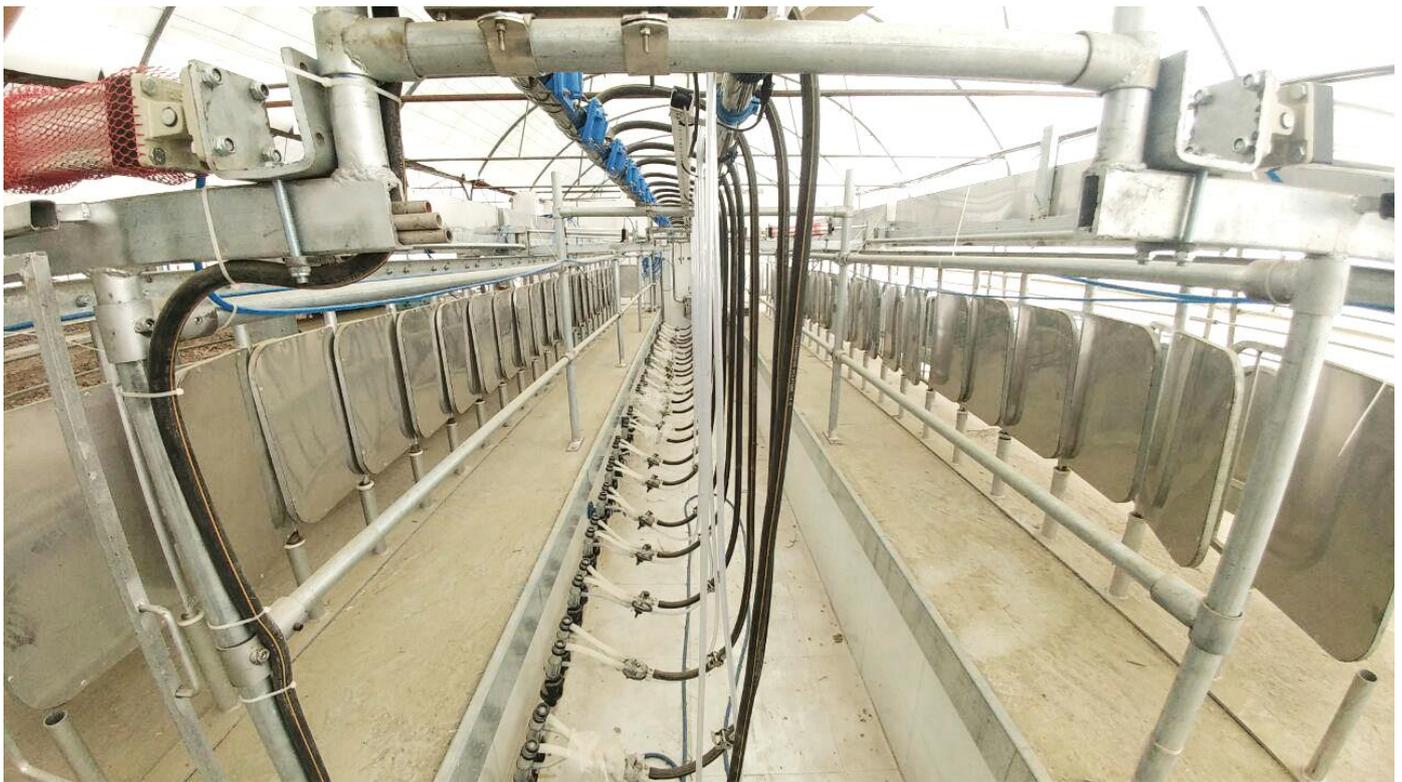
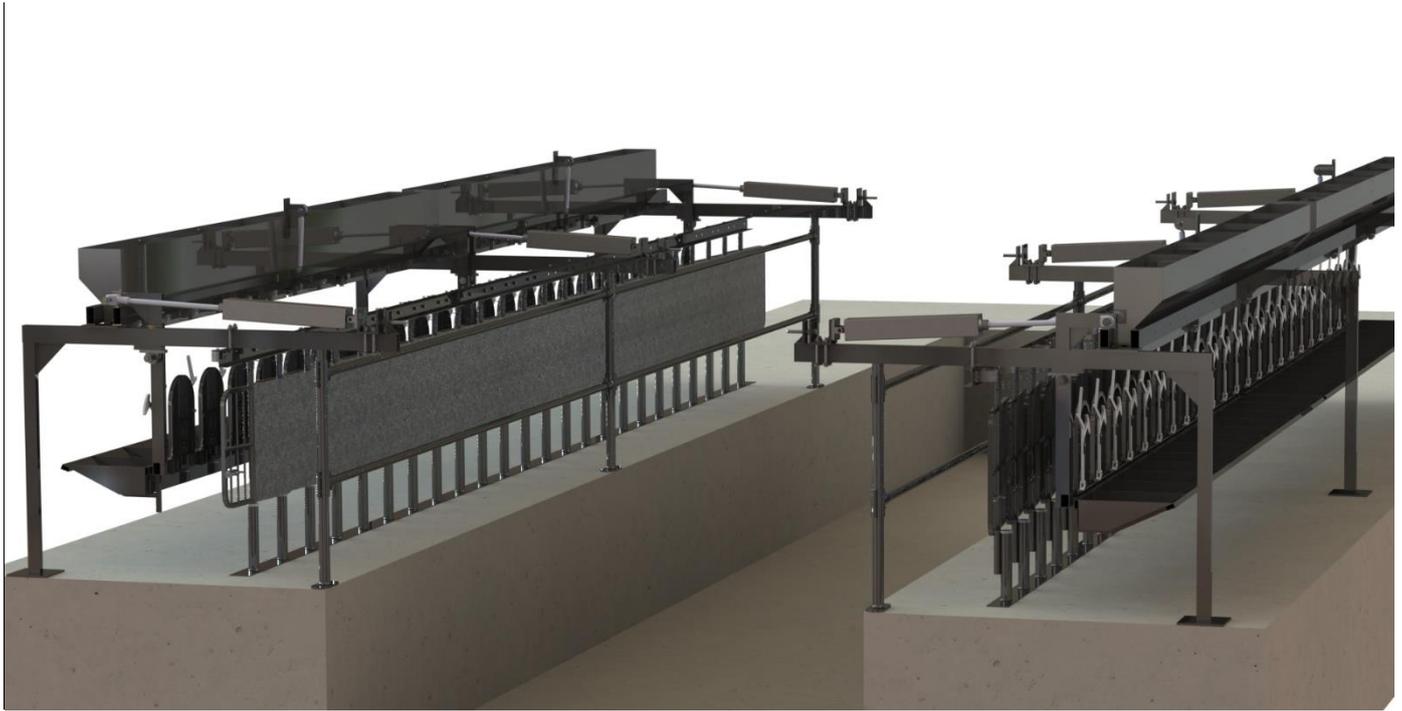
Investment in IRAN Railway Projects

According to Iran's geographical position - Iran is the main passage way of two important international corridors, (India to Europe and China to Europe) also vantage of Persian gulf as the channel of oil and petrochemical products, investment in Iran railway projects could result great financial, national and regional benefits.

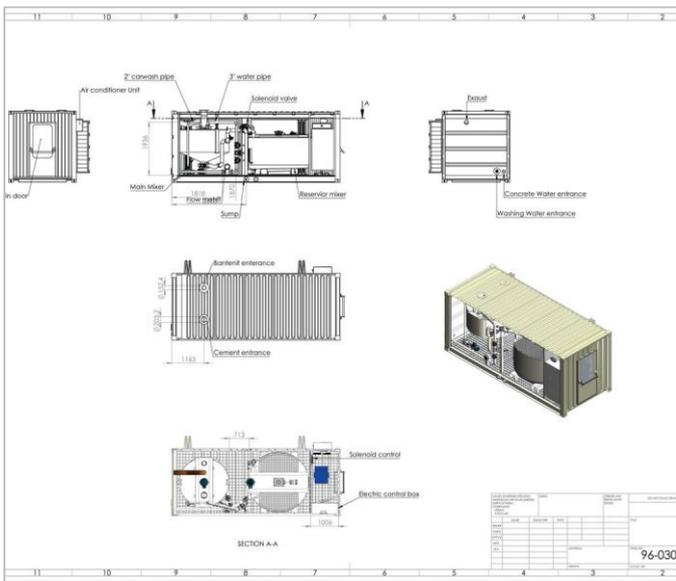
ARACo consulting engineers has a good capability in project development and due to a perfect acquaintance of Iran’s railway and economical background, is now prepared to guide those who attend to invest in railway projects in Iran or Middle East. As we have successfully attracted local financiers to invest more than 100 million Euros in Iran railway projects in BOT and ROT format, we are ready to cooperate to increase your share and contribution in railway transportation.



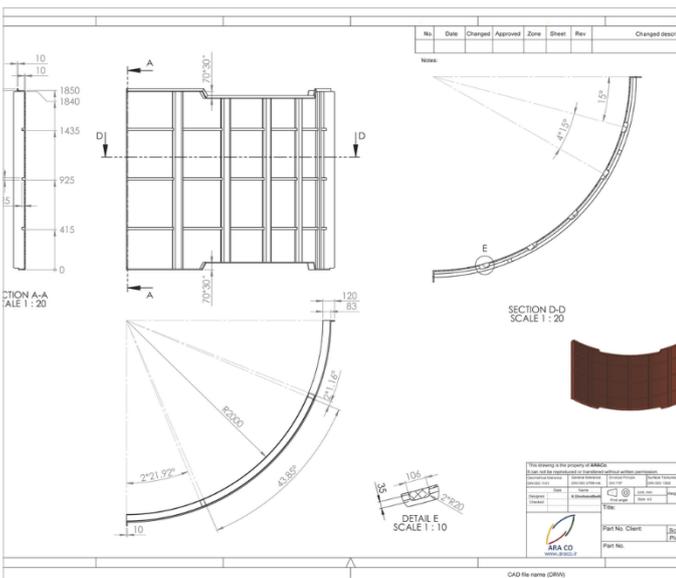
Project Samples: Industrial Design and Reverse engineering



Engineering design, 3D Modeling and shop drawing - milking farm unit



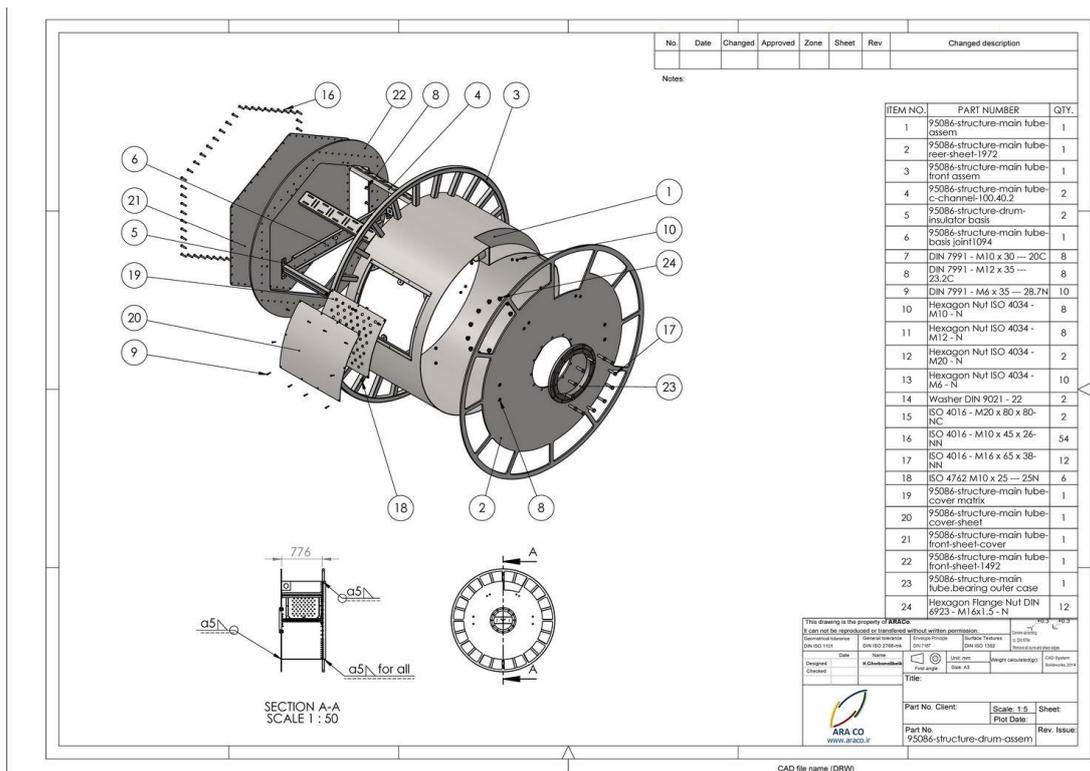
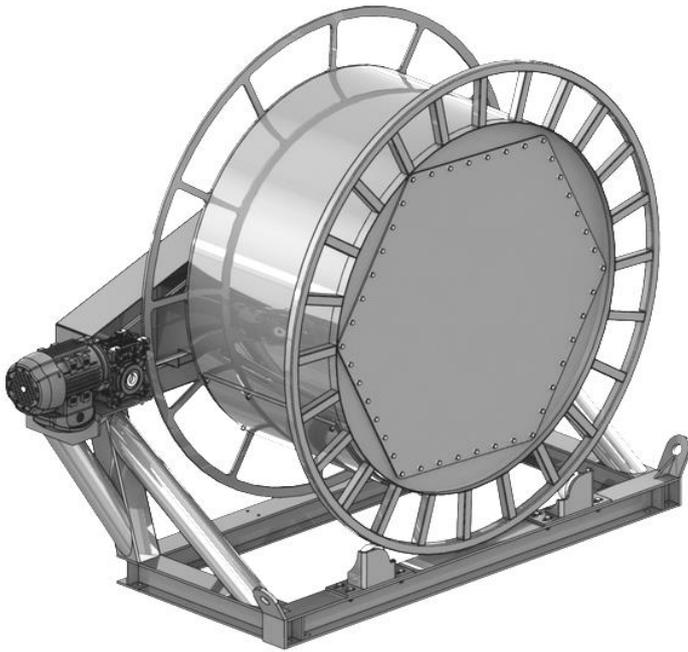
Engineering design, 3D Modeling and shop drawing - Batching mini plant



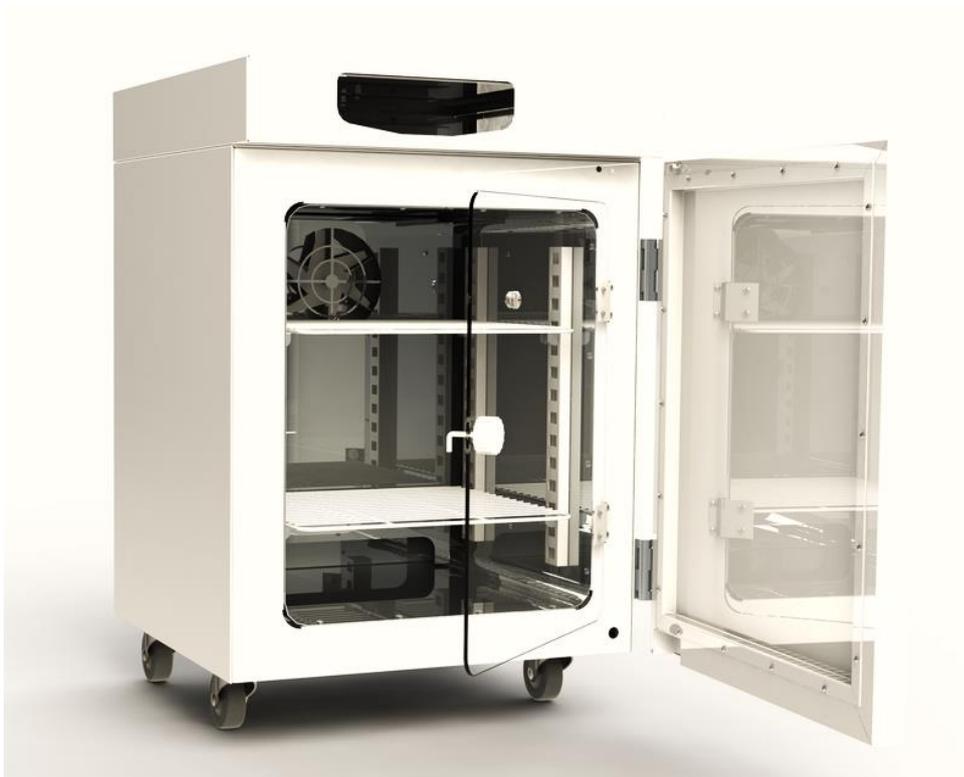
Engineering design, 3D Modeling and shop drawing - Forced draft ventilation cooling tower



Reverse Engineering, 3D Modeling, Modification and shop drawing - MDF veneer press machine



Reverse Engineering, 3D Modeling, Modification and shop drawing – TBM Cable drum



Reverse Engineering, 3D Modeling, Modification and shop drawing – CO2 Incubator



Engineering Design, 3D Modeling, Modification - Agitated filter



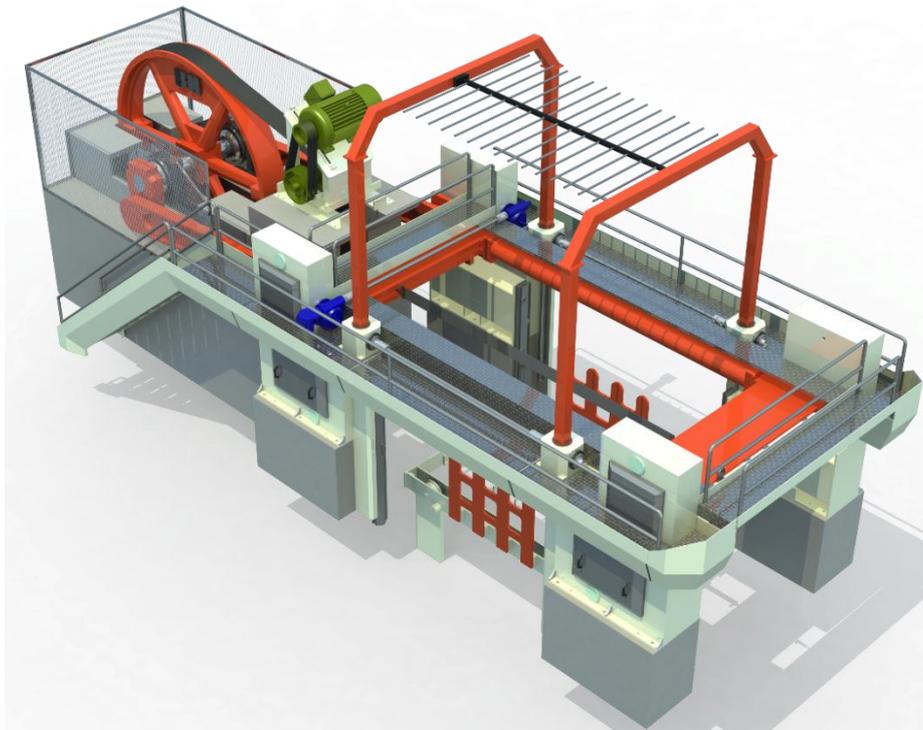
Industrial Design, 3D Modeling, Rendering - Mobile holder assembly



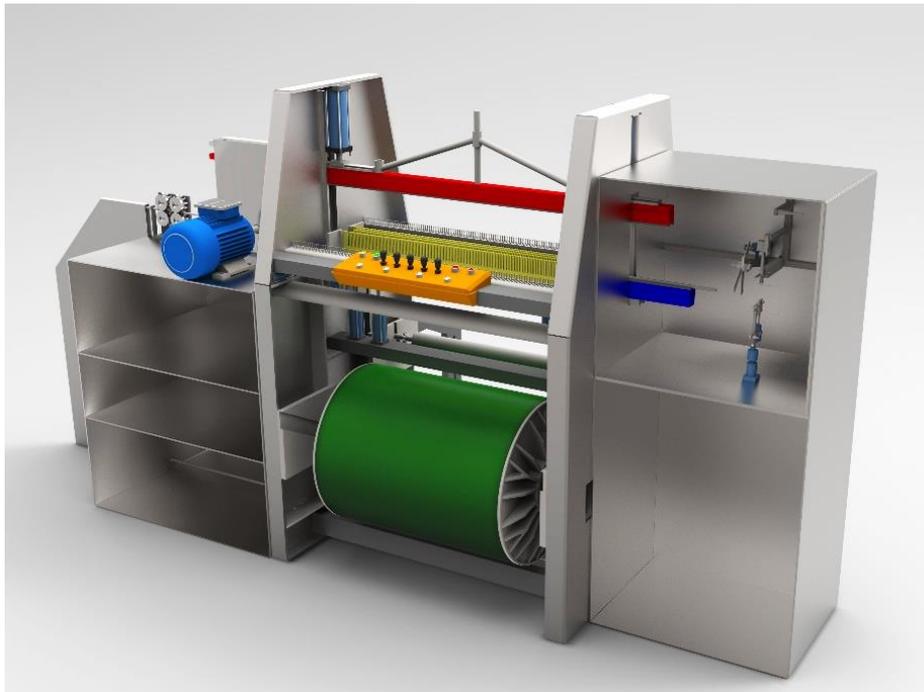
Industrial design, 3D modeling, Rendering - Fire extinguish pump case



3D Modeling, Rendering- Kitchen and toilet sink siphon



Engineering Design, 3D modeling, Rendering - Stone cutting machine

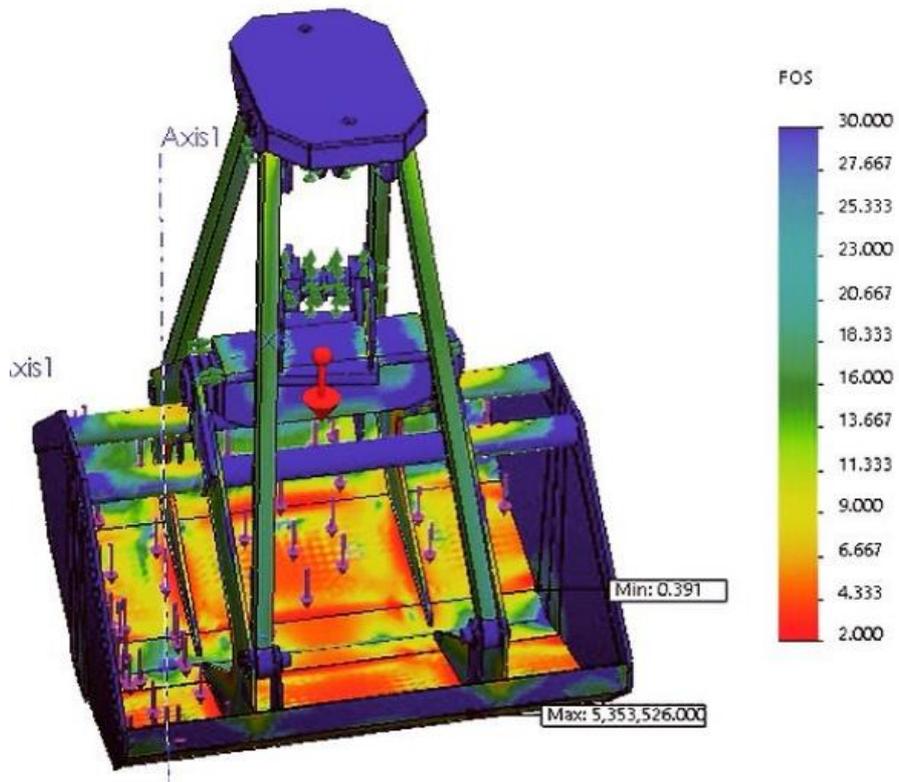


Industrial design, 3D modeling, rendering - Specialized textile machine

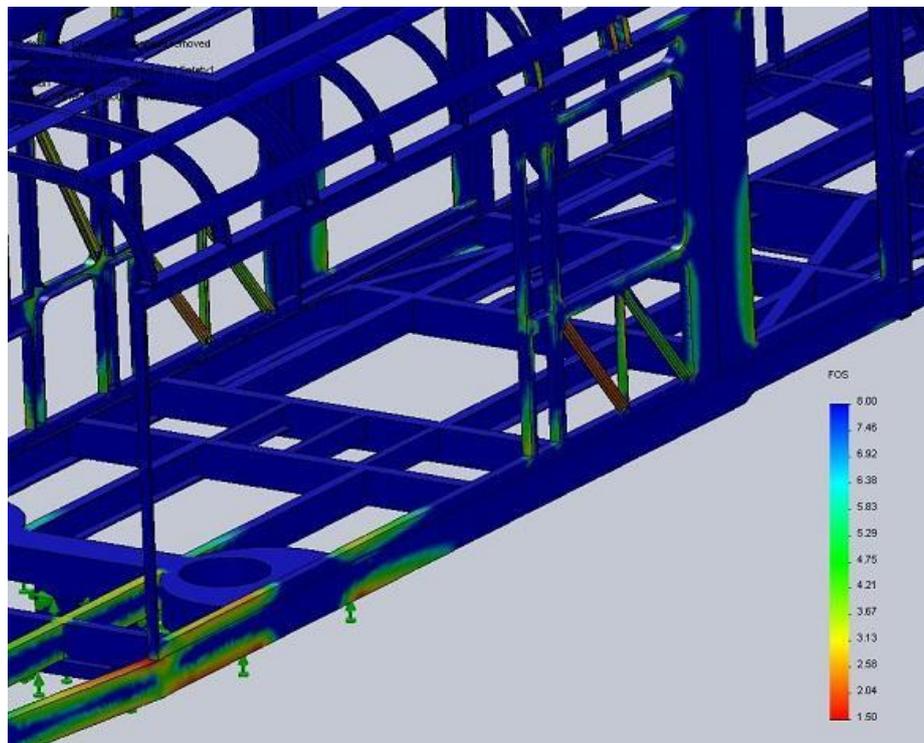


Reverse engineering, 3D modeling and rendering - Quad copter Drone

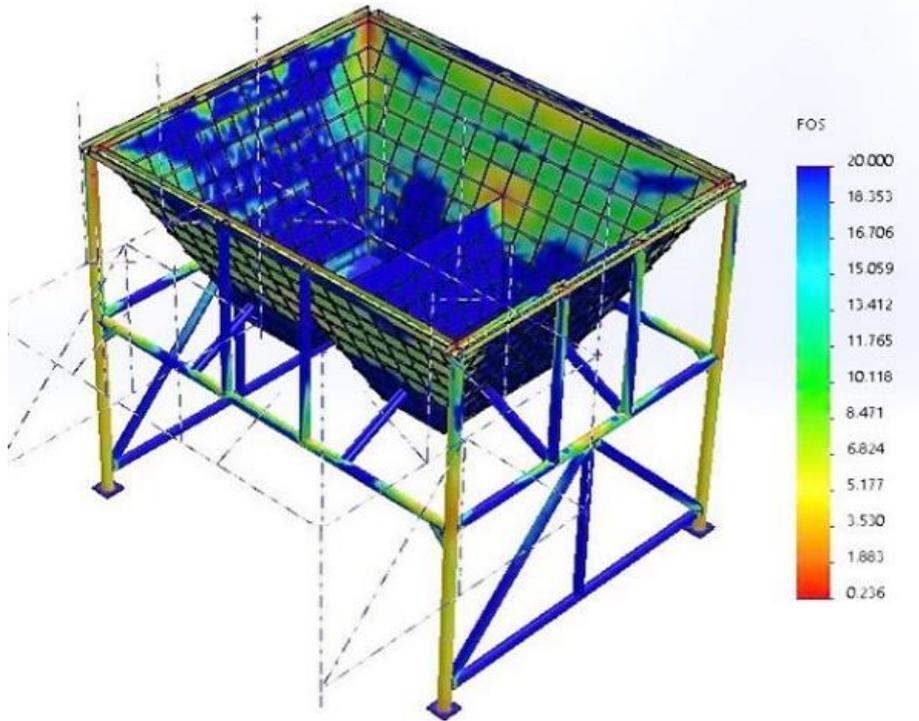
Project Samples: FEA - Finite element analysis



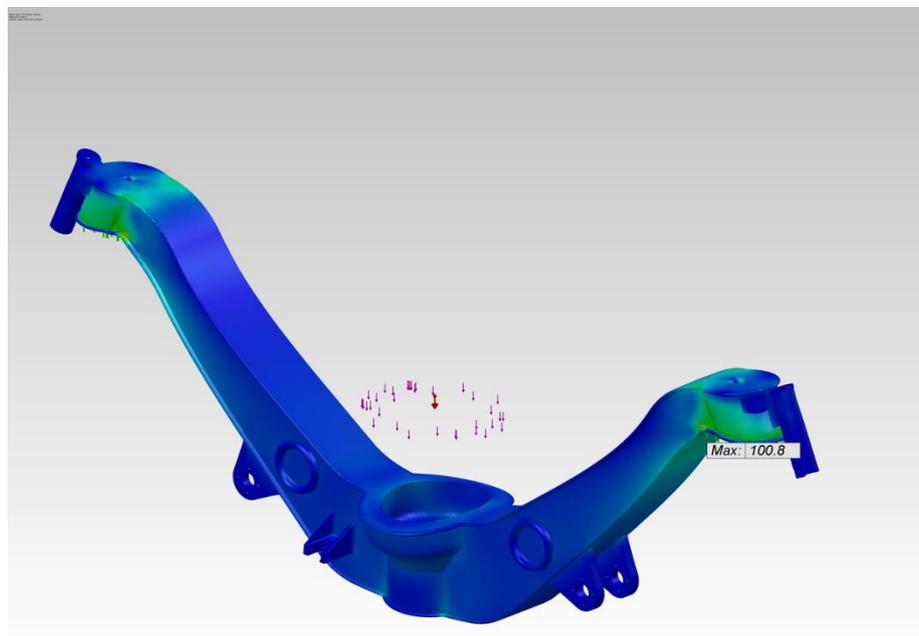
3D modeling, static simulation - Industrial Rake



3D modeling and static analysis – SNCF turbo train coach

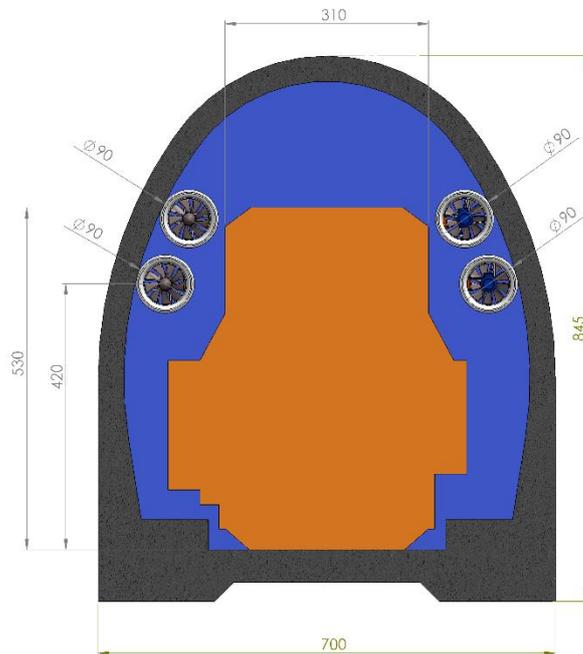
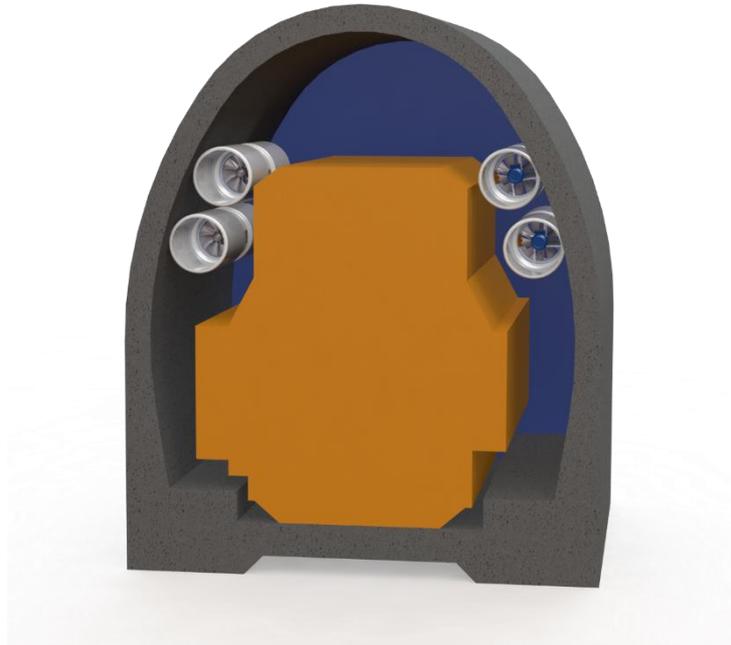


3D modeling, Static simulation - Industrial hopper

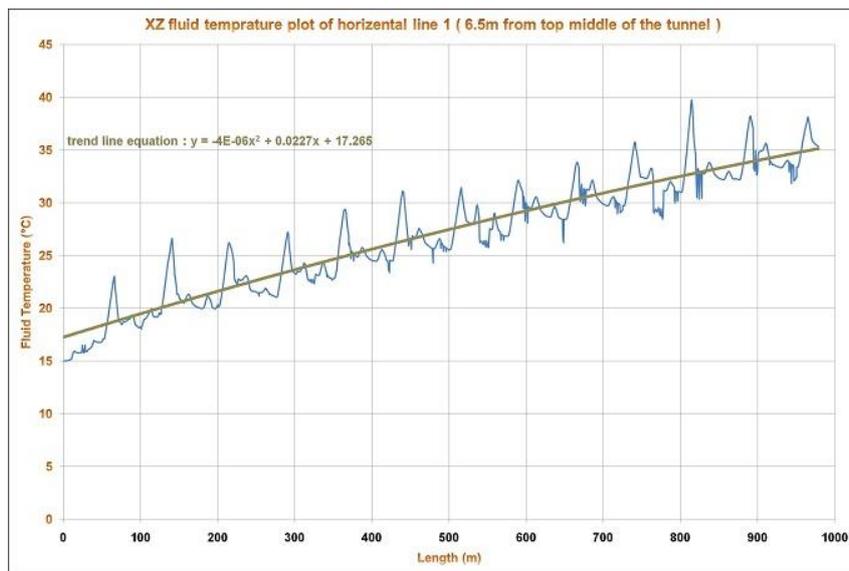
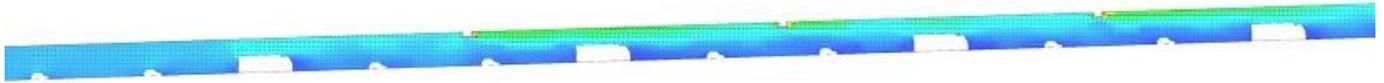
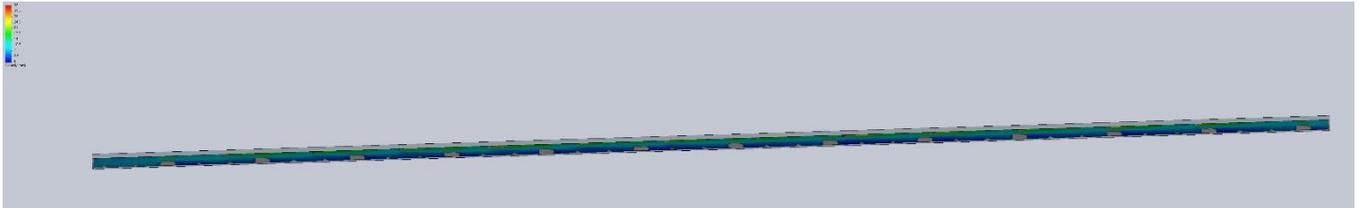


3D modeling, Static analysis - Y32 Bogie

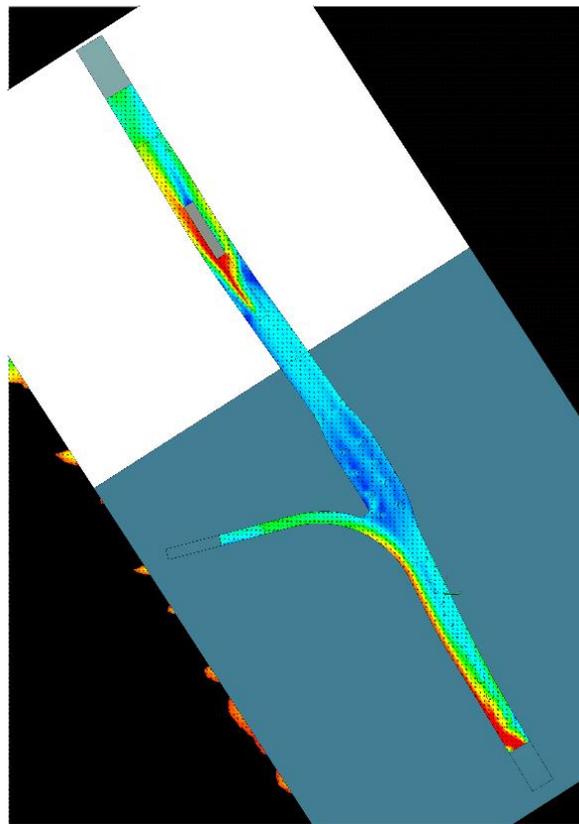
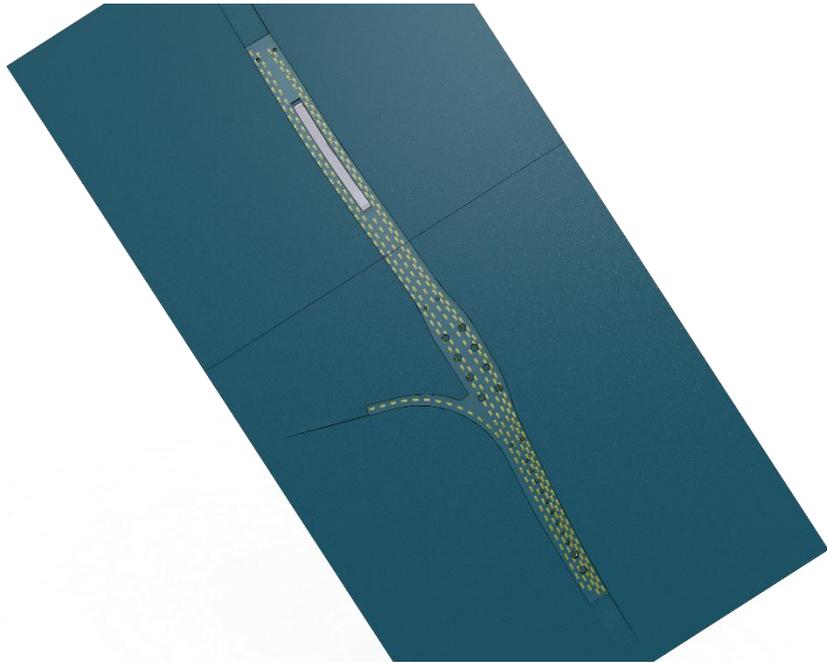
Project Samples: CFD, PyroSim Simulation, Tunnel Ventilation



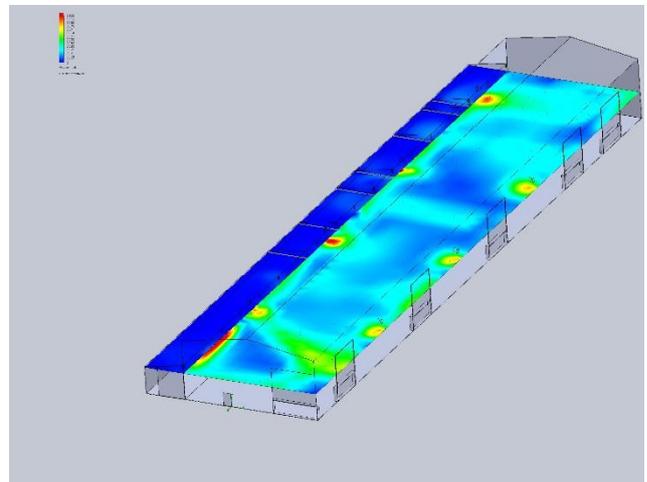
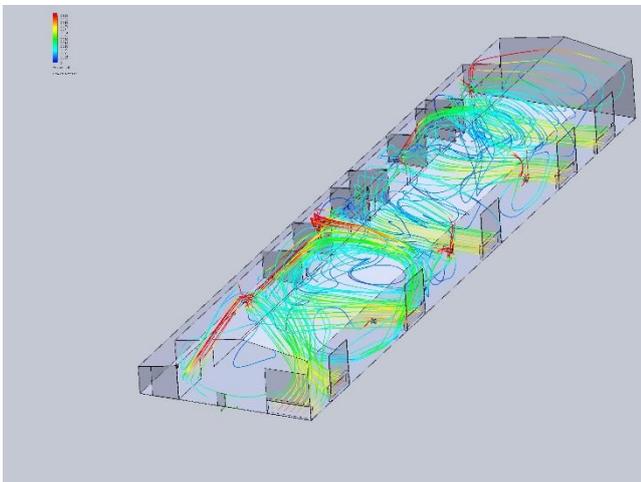
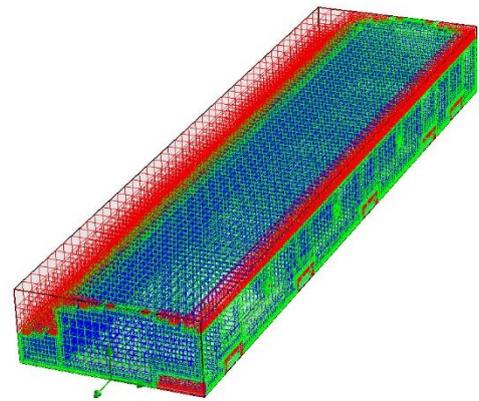
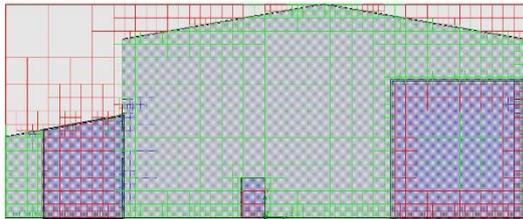
Railway tunnel ventilation design and arrangement – Doroud Khoramabad route



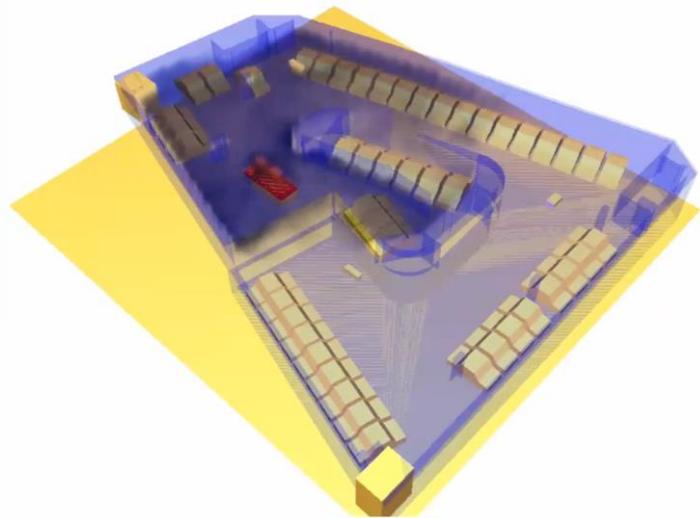
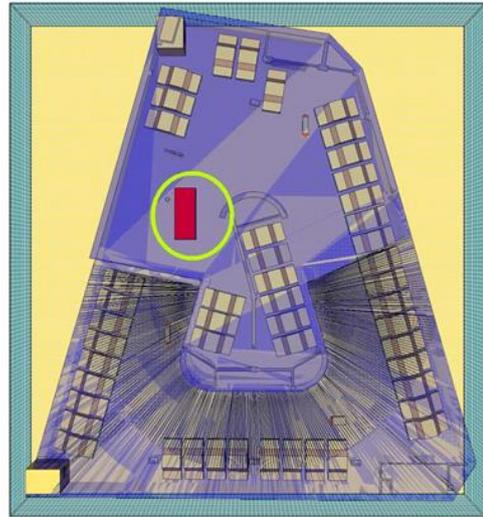
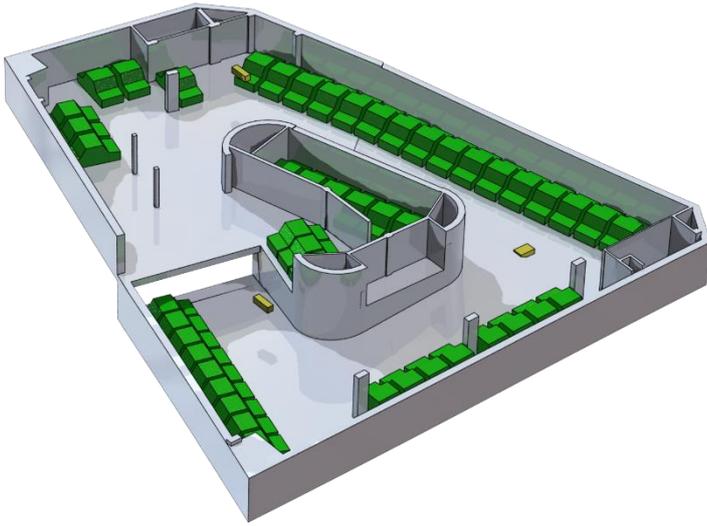
Road tunnel ventilation design and CFD – Saadat shahr route



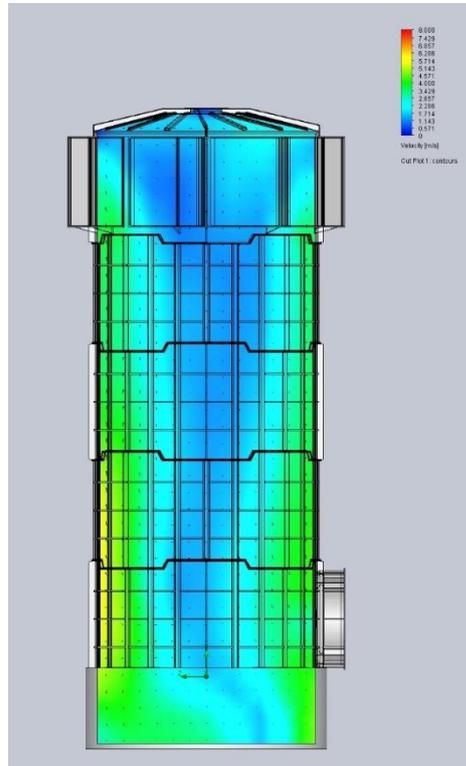
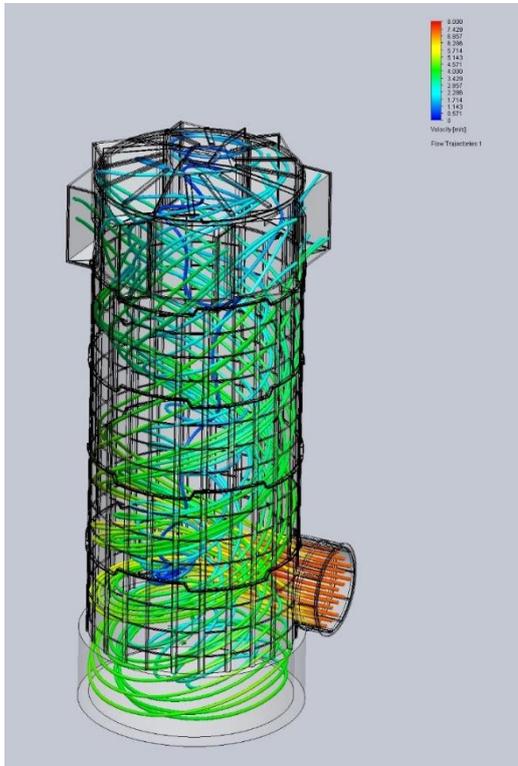
Natural draft ventilation CFD – Kerman Azadi underpass



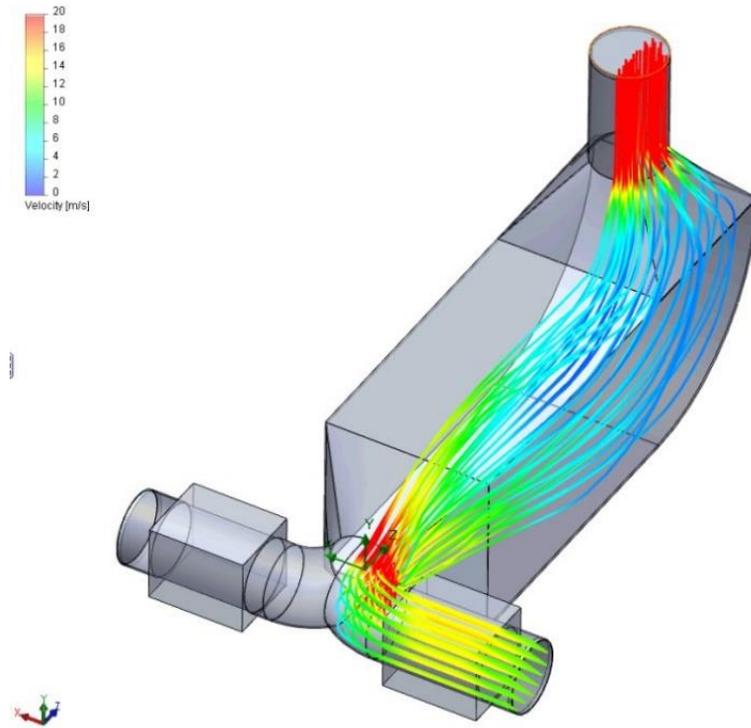
Ventilation design and CFD – Angouran zinc and lead mine (Maintenance depot)



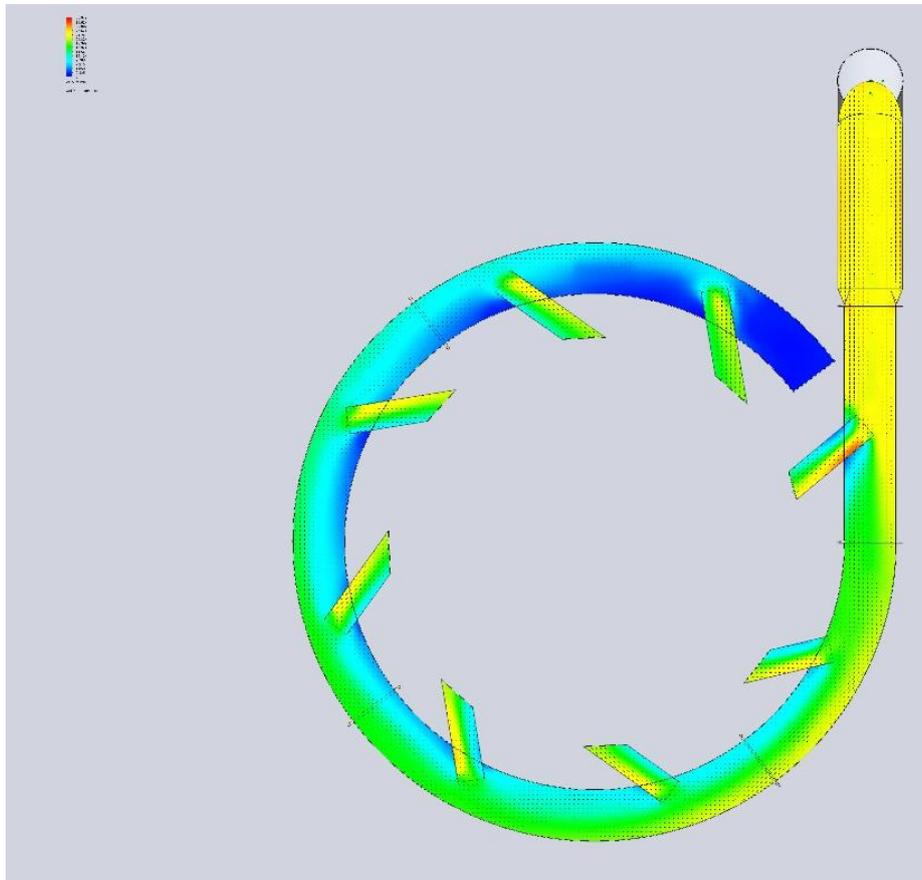
Fire and smoke simulation (PyroSim) – Damandeh Parking lot



Design and CFD – Force draft cooling tower for Gheshm industrial complex



CFD, fluid simulation - Mashhad power plants exhaust Unit



3D modeling, CFD simulation and optimization for uniform output flow rate - PSG Co Rotary air drier



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