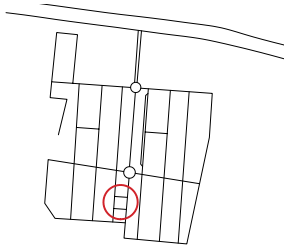
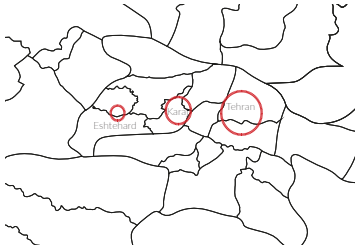


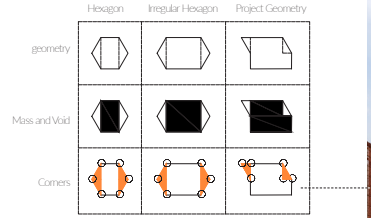
the process department of Shamim Polymer Factory is located on a land area of 3850 square meters in Omid Alborz Industrial Town; Ten kilometers from the Mahdasht-Ishtahard road, a place surrounded by the desert in the south of Karaj.
The factory›s entire building is 2200 meters in size, consisting of two unbalanced and unconventional forms next to each other. However, the knowledge of what this plant is supposed to do is incorporated into the form and content in a premeditated fashion.



Process department of Shamim Polymer factory

Eshtehard, a semi-industrial suburb of Tehran, has played a key role in industrial development over the past fifty years. Our architectural team recently visited to work on the «Factory» project, focusing on contemporary industrial design that caters to various users, especially underserved groups. Our designs may include features like chicken coops on noisy sides and designated smoking areas on quieter sides.

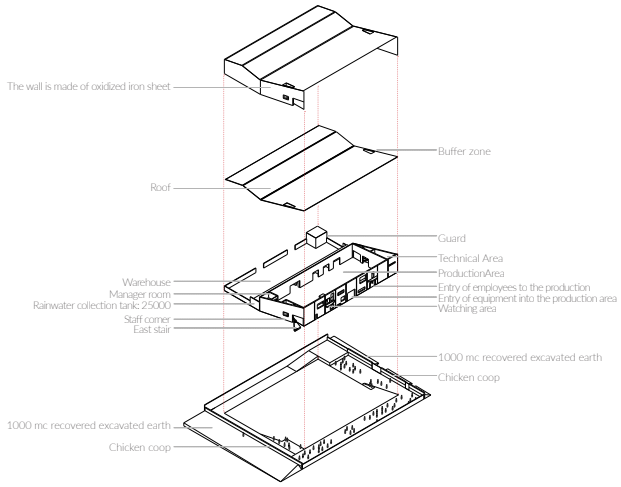
The project focuses on restoring and preserving the ecosystem by optimizing polymer materials. Our architectural concept showcases this optimization within the building, resulting in spatial designs that are «enlivening» and reflective of the optimization principles.

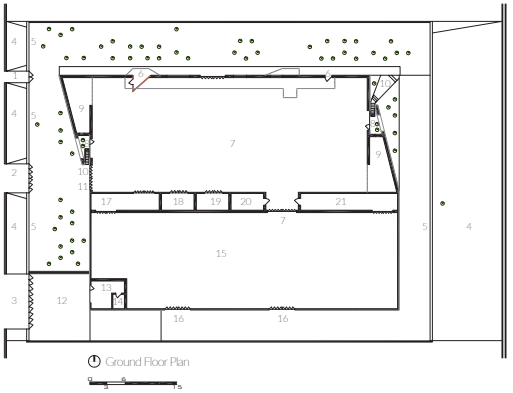


The process of forming the
design geometry and creating a cozy area for employees

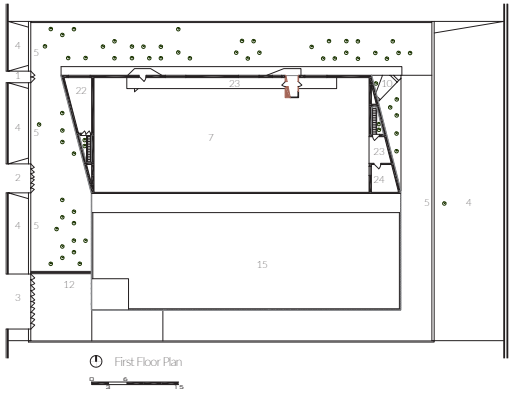
This factory exemplifies restoration and revitalization in both form and content. Similar to Shamim Polymer Factory›s devices that create specialized polymer products, Form Bana aims to showcase this performance by bringing various elements to life.

This movement can be seen in all parts of the factory building from part to whole. Sometimes defamiliarizing the common form of things has helped to bring them to life, such as the unusual use of raw iron sheets as walls and ceilings, and sometimes we tried to add a different form of them to the work plan by telling stories for the spaces. To carry out both parts of this process, our source of inspiration was the factory workers as the main users of the space. They were the ones who helped to create this space by planning their needs, hobbies, and concerns, and most importantly, their spatial requirements during the design and construction of the project.



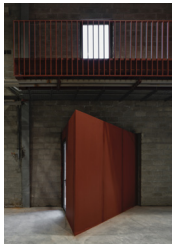


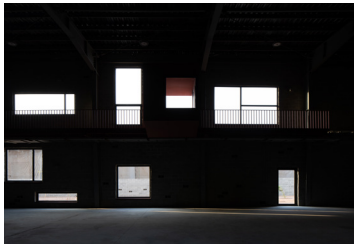
Ground Floor Plan

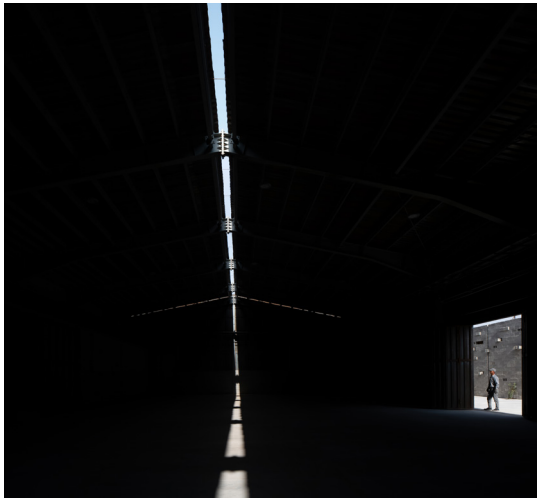


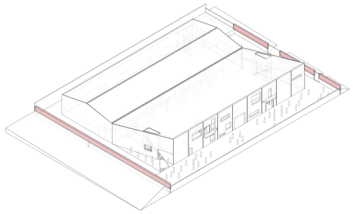
First Floor Plan

-1 Pedestrian entrance
-2 Automobile entrance
-3 Dock access
-4 The topography created from the excavation of the project
-5 Chicken and rooster nests
-6 Entry of employees to the production department
-7 Production department
-8 Staff corner | out
-9 Staff corner | in
-10 stairs
-11 Entry of equipment to the production hall
-12 Dock
-13 Guarding
-14 Restroom
-15 Warehouse
-16 Forklift entrance to the warehouse
-17 Electrical room
-18 Small equipment warehouse
-19 Product sample warehouse
-20 Compressed air room
-21 Pump house and water tanks and Rainwater collection tank
-22 Technical room
-23 Watching area
-24 Supervisons room



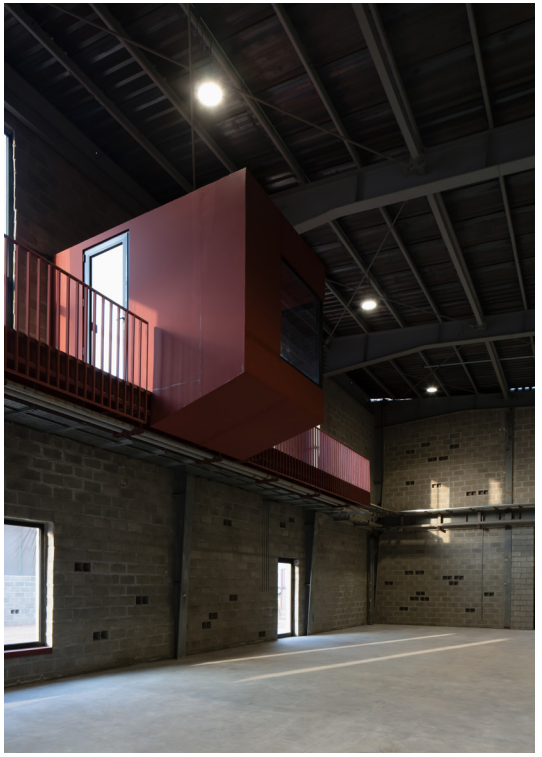


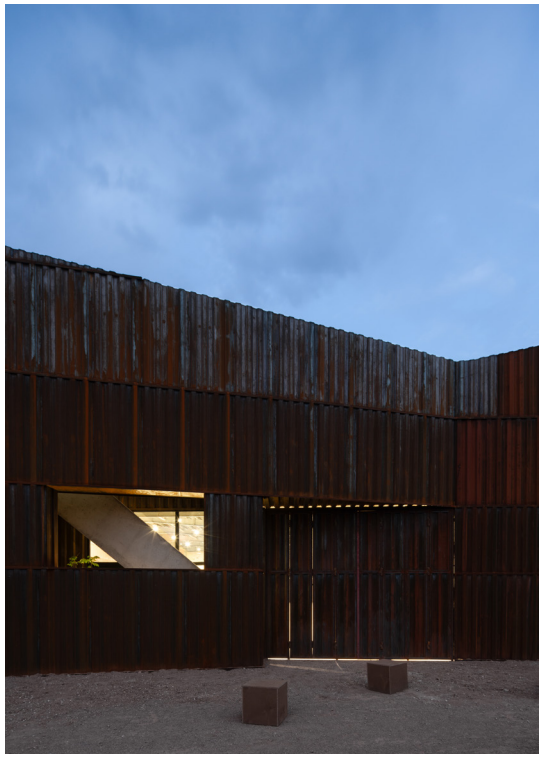


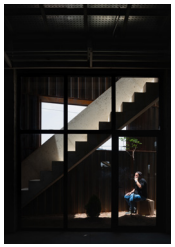


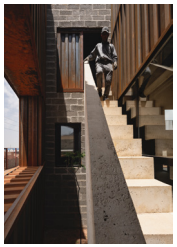
Chicken coop

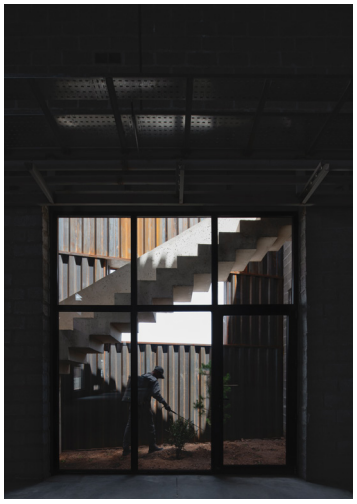
The factory›s walls are designed with an open narrative, featuring a row of chickens and roosters atop a one-meter block wall, creating an illusion of a living sky. An employee suggested this free chicken coop during construction, highlighting the project›s focus on collective participation. By incorporating employees› needs and requests, we aimed to create a comfortable environment, fostering a sense of ownership in their second home while celebrating their livelihood and dignity.





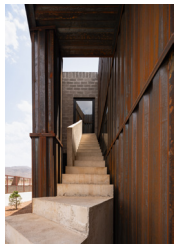


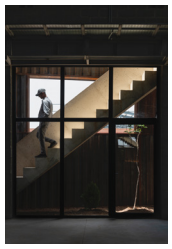


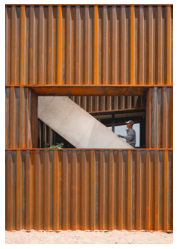


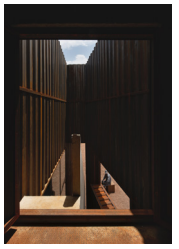
We sought local materials for some project walls, not to trace historical roots, but to highlight the region›s economic prosperity by using materials from nearby factories that future employees would recognize. The random process of stacking cement blocks, that is, cement blocks that are not very similar to the production of nearby factories, helped us to remember the presence of the project staff in this building.

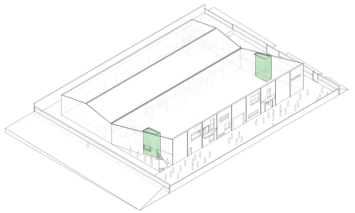
The building›s design comes to life through its stories, including its asymmetric parallelogram shape, which we advocated for over a traditional factory layout. To improve employee experiences, we included relaxation areas for smoking on both the east and west sides, with transparent green spaces that address concerns about gatherings. The staircase in the southeast corner, designed to look like it floats, symbolizes movement and life. This concept of suspension is echoed in the building›s exterior, where exposed metal evolves in color, blending with the landscape.



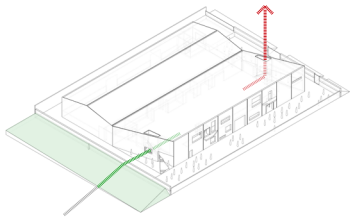




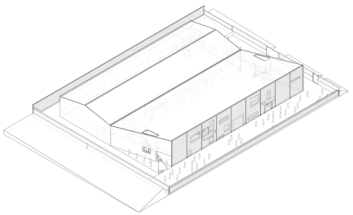




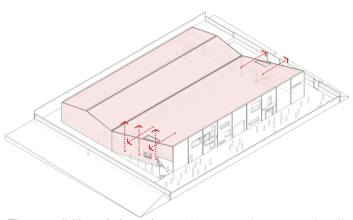
Staff corner



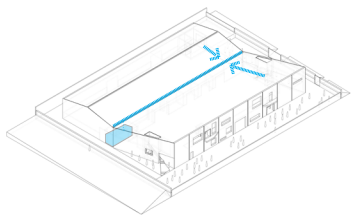
The possibility of blind air in the hot seasons of the year through two empty spaces (employees' corner) in the east and west



The use of production materials from nearby factories - the possibility of economic prosperity in the region



The possibility of air exchange between the external walls mainly made of cement block and rusted metal shell



Collecting and storing rainwater for irrigation of green spaces

LEED v4 for BD+C: Core and Shell

The project development integrates the building envelope and systems, in order to maximize energy efficiency through the right balance between envelope, passive systems and active systems. The destination is a workplace, so the focus is on the aspects of quality and internal environmental healthiness. This method guarantees quality factors: easy management, reliability, low maintenance and hygienic safety, adequate thermal comfort.



Materials and Resources

Sourcing of Raw Materials_ The cement blocks that make up the wall are produced in surrounding factories, using raw materials within a 15 km radius.

Waste Management_ From the excavation, 1000 mc of soil were recovered and reused on site.

Water efficiency

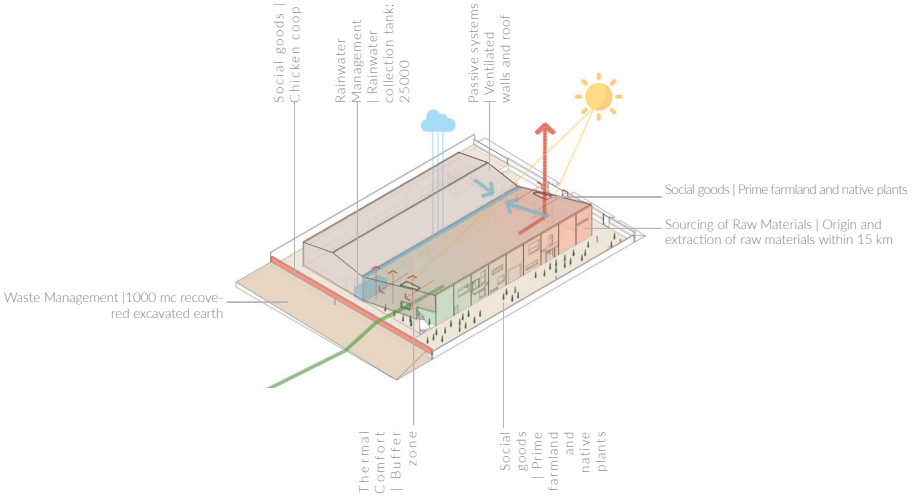
Rainwater Management_Collection and storage of rainwater for the irrigation of green spaces. The tank size is proportionate to the rainfall and the collection surfaces available on the roof in 25000 l.

Comfort

Thermal comfort_Two strategies help comfort in the production area: two buffer zones, placed in the east and west, allow natural ventilation; walls and roof, with a ventilated air chamber, isolate the building, lowering the energy needs.

Sustainable communities

Social goods_Participatory design, relax areas, social benefits such as farmland and chicken coop, attention to the quality views, make the factory a second home.



SUSTAINABLE DEVELOPMENT GOALS

The greatest global challenge and the prerequisite for sustainable development is the eradication of poverty, in all its forms and dimensions, including extreme poverty. Agenda 2030 is a program of action for people, planet and prosperity, through a collective journey that is based on 17 goals for sustainable development.Architecture has a crucial role in the realization of this program of action and in balancing the three dimensions of sustainable development: the economic, social and environmental.

Our project has pursued the balancing of these three dimensions, contributing to the five goals relevant to its function: 8, 9, 11, 12 and 13.

8 DECENT WORK AND ECONOMIC GROWTH

Sustained and inclusive economic growth can drive progress and improve living standards.

9 INDUSTRIES, INNOVATION AND INFRASTRUCTURE

If industries pursue sustainability, this approach will have a positive effect on the environment.

11 SUSTAINABLE CITIES AND COMMUNITIES

If industries pursue sustainability, this approach will have a positive effect on the environment.

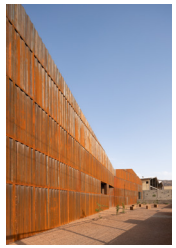
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Transitioning to a circular economy involves designing products for longevity and recyclability.

13 CLIMATE ACTION

Ensure emissions are lowered because it makes economic and business sense as well.






Y	?	N			
			Credit	Integrative Process	1

12	10	0	**Location and Ttansportation**		20
10			Credit	LEED for Neighborhood Development Location	20
2			Credit	Sensitive Land Protection	2
	?		Credit	High Priority Site	3
	3		Credit	Surrounding Density and Diverse Uses	6
	4		Credit	Access to Quality Transit	6
	1		Credit	Bicycle Facilities	1
	1		Credit	Reduced Parking Footprint	1
	1		Credit	Green Vehicles	1

11	0	0	**Sustainable Sites**		11
Y			Prereq	Construction Activity Pollution Prevention	Required
1			Credit	Site Assessment	1
2			Credit	Site Development - Protect or Restore Habitat	2
1			Credit	Open Space	1
3			Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
1			Credit	Light Pollution Reduction	1
1			Credit	Tenant Design and Construction Guidelines	1

8	3	0	**Water Efficiency**		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
6			Credit	Indoor Water Use Reduction	6
	2		Credit	Cooling Tower Water Use	2
	1		Credit	Water Metering	1

24	4	0	**Energy and Atmosphere**		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
	4		Credit	Enhanced Commissioning	6
15			Credit	Optimize Energy Performance	18
1			Credit	Advanced Energy Metering	1
2			Credit	Demand Response	2
3			Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
2			Credit	Green Power and Carbon Offsets	2

12	0	0	**Materials and Resources**		14
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management	Required
4			Credit	Building Life-Cycle Impact Reduction	6
2			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
2			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
2			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

0	10	0	**Indoor Environmental Quality**		10
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
	2		Credit	Enhanced Indoor Air Quality Strategies	2
	3		Credit	Low-Emitting Materials	3
	1		Credit	Construction Indoor Air Quality Management Plan	1
	3		Credit	Daylight	3
	1		Credit	Quality Views	1

5	0	0	**Innovation**		6
5			Credit	Innovation	5
		N	Credit	LEED Accredited Professional	1

0	0	0	**Regional Priority**		4
		N	Credit	Regional Priority: Specific Credit	1
		N	Credit	Regional Priority: Specific Credit	1
		N	Credit	Regional Priority: Specific Credit	1
		N	Credit	Regional Priority: Specific Credit	1

72	27	0	**TOTALS**	Possible Points	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

To promote an integrated design system, strategies adhered to the LEED protocol, focusing on a “cradle to cradle” approach from design to disuse. LEED provides benefits like reduced building management costs and enhanced livability. Goals are highlighted in green for achievable objectives and yellow for those outside the designer’s control.