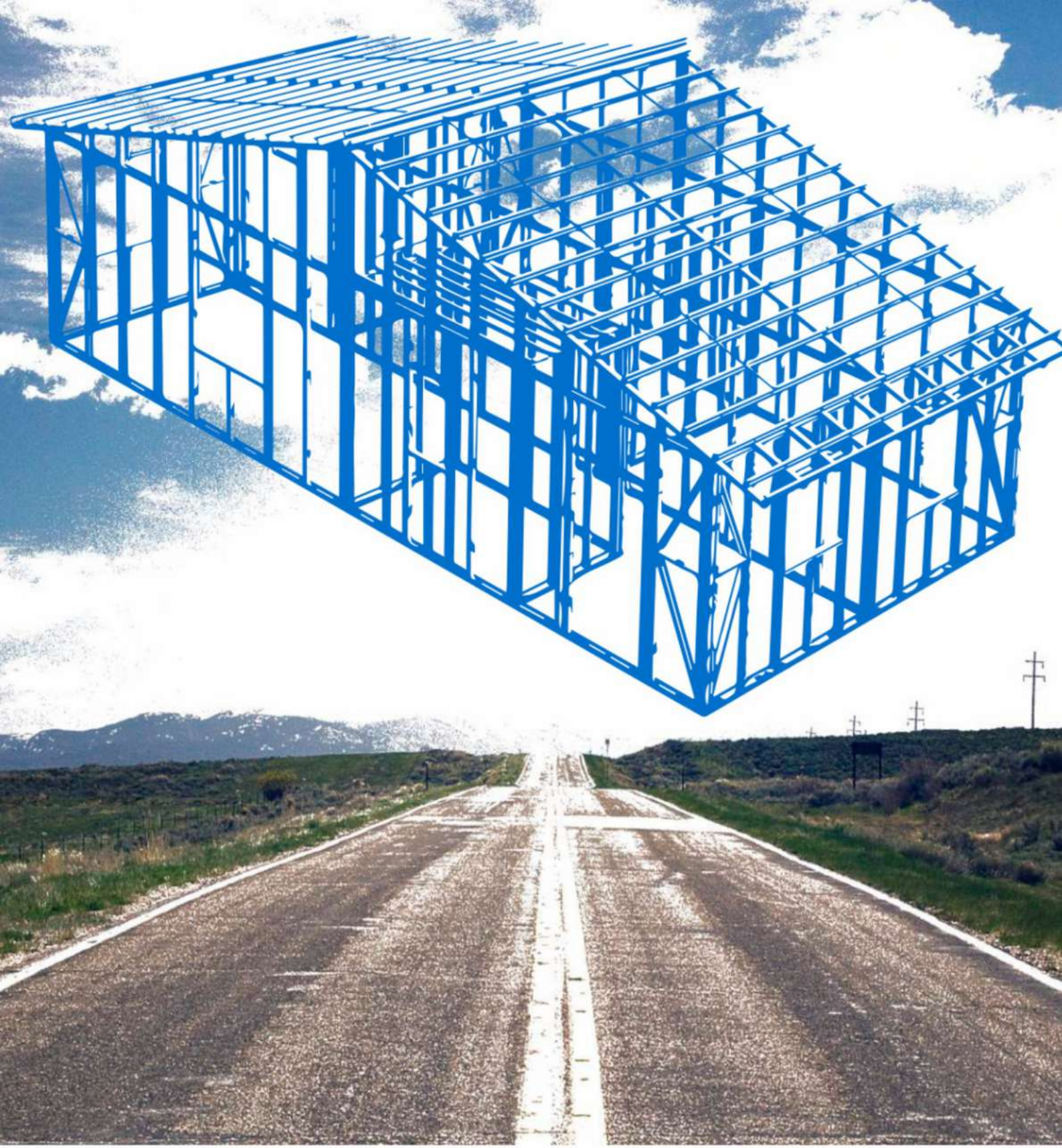


ecoFrame SPAIN
STEEL FRAME SYSTEM

Industrialized homes

GENERAL CATALOGUE

ecoFrame SPAIN

STEEL FRAME
SYSTEM

Industrialized homes for a better world

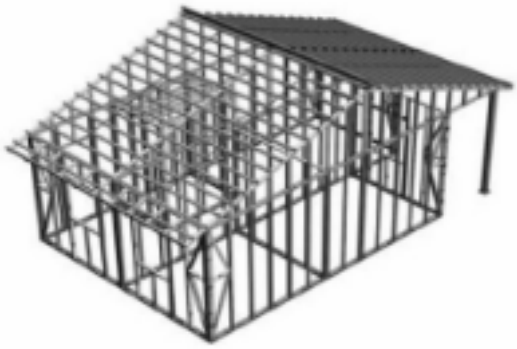
CONTENTS

ecoFrame SPAIN

STEEL FRAME
SYSTEM

ABOUT EcoFRAME SPAIN

EcoFrame Spain Building System was created from the strategic alliance between cutting-edpe companies in the real estate and industrial sectors. The newly created company capitalizes on the skills and expertise of its members to launch to the industrialized construction market its innovative product of excellent quality and distinguishing features.



Factory in Spain

RESEARCH, DEVELOPMENT, INNOVATION

We have invested more than ten years in R&D to create our own EcoFrame Building System, an important upgrade from the traditional Light Steel Frame, which has been a turning point in the evolution of the steel frame construction.

Development situ

40 YEARS OF EXPERIENCE IN THE INDUSTRIAL AND REAL ESTATE SECTORS

Steel silos for grain storage in Montevideo (Uruguay)

ABOUT EcoFRAME SPAIN

OUR INTERNATIONAL PRESENCE

Distributors in 17 countries

Projects in more than 45 countries

Subsidiaries in 7 countries

Factories in 2 countries

France, Italy, Germany, Portugal, Hungary, Poland, Belarus, Russia, Kazakhstan, Azerbaijan, Czech Republic, Slovakia, India, Thailand, Vietnam, the Philippines, Bulgaria, Argentina, Chile, Uruguay, Peru, Venezuela, Colombia, Mexico, Morocco, Algeria, Tunisia, Egypt, UAE, Mozambique, Angola, Bolivia, Denmark, Spain, Gabon, Guatemala, England, Turkey, Ukraine, Brazil...

Development in Málaga

7,200 HOMES BUILT

12,800 TONS OF PROCESSED STEEL SHEET /YEAR

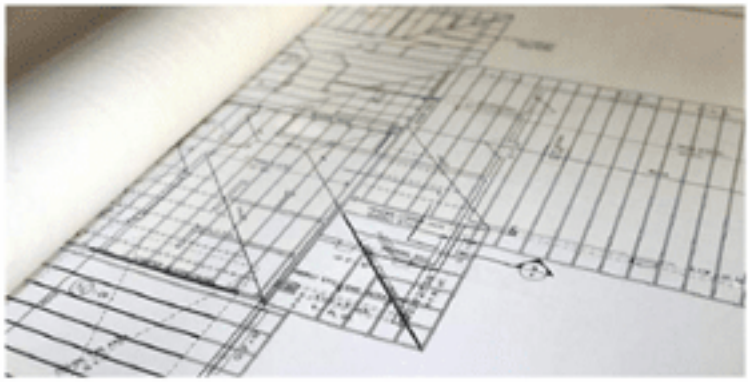
5MM M2 OF URBANIZED LAND

65,000 M2 OF OFFICES CREATED

OUR MODEL

Our model is based on the discovery of market opportunities, the leverage of the production and distribution capabilities of our companies, and the capitalization of synergies.

The project aims to meet the growing demand for global housing, primarily intending to cover the development of affordable and sustainable social housing plans according to the needs and preferences of the new consumer - either public or private - with a high level of commitment.

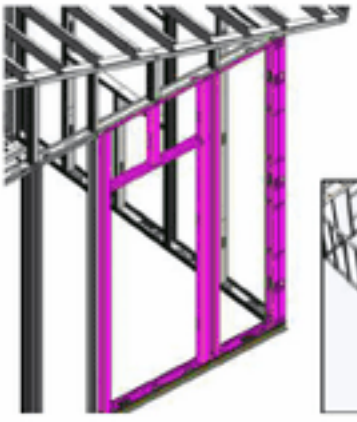


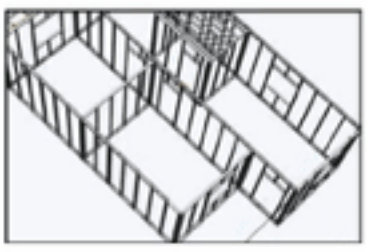
SOCIAL COMMITMENT

In the social aspect, EcoFrame provides sustainable, affordable, and practical constructions. Also, the EcoFrame system simplifies the management of local social policies, allowing access to housing to a greater number of people.

VERSATILE, ADAPTABLE, AND 100% COMPATIBLE

Its versatility allows it to be adapted to any type of project and offers standardized solutions and samples ready to be shipped anywhere without delay and at a competitive cost.





OUR MODEL

YOUR PROJECT IS IN GOOD HANDS

Most times projects don't meet the agreed budgetary targets and deadlines and are not finished as expected. Many of them encounter problems in their execution that endanger the project itself and even worse, it weakens the possibility of undertaking future projects.

EcoFrame combines the use of a unique reliable, easy, economic, and sustainable construction system with a full range of services that make projects more profitable with much less effort, risk, and investment.

WAY TO OPERATE BASED ON SERVICES

- Technical advice.
- Adaptation of projects to our system.
- Design and optimization.
- Structural calculations.
- Manufacturing.
- Logistics.
- International transport.
- Assembly assistance.
- Installation manuals.
- Training teams.

Shipments in sea containers anywhere in the world at a low cost.

OUR MODEL

From EcoFrame Spain we want to respond to the need for social, dignified, and sustainable housing in developing countries. For that matter, we've developed a constructive system with unique features that brings all the benefits of traditional construction in terms of strength and comfort and doesn't present the traditional disadvantages concerning costs and deadlines.

The galvanized steel frames of our building system allow the transport of perfectly packed houses in sea containers anywhere in the world at a low cost.

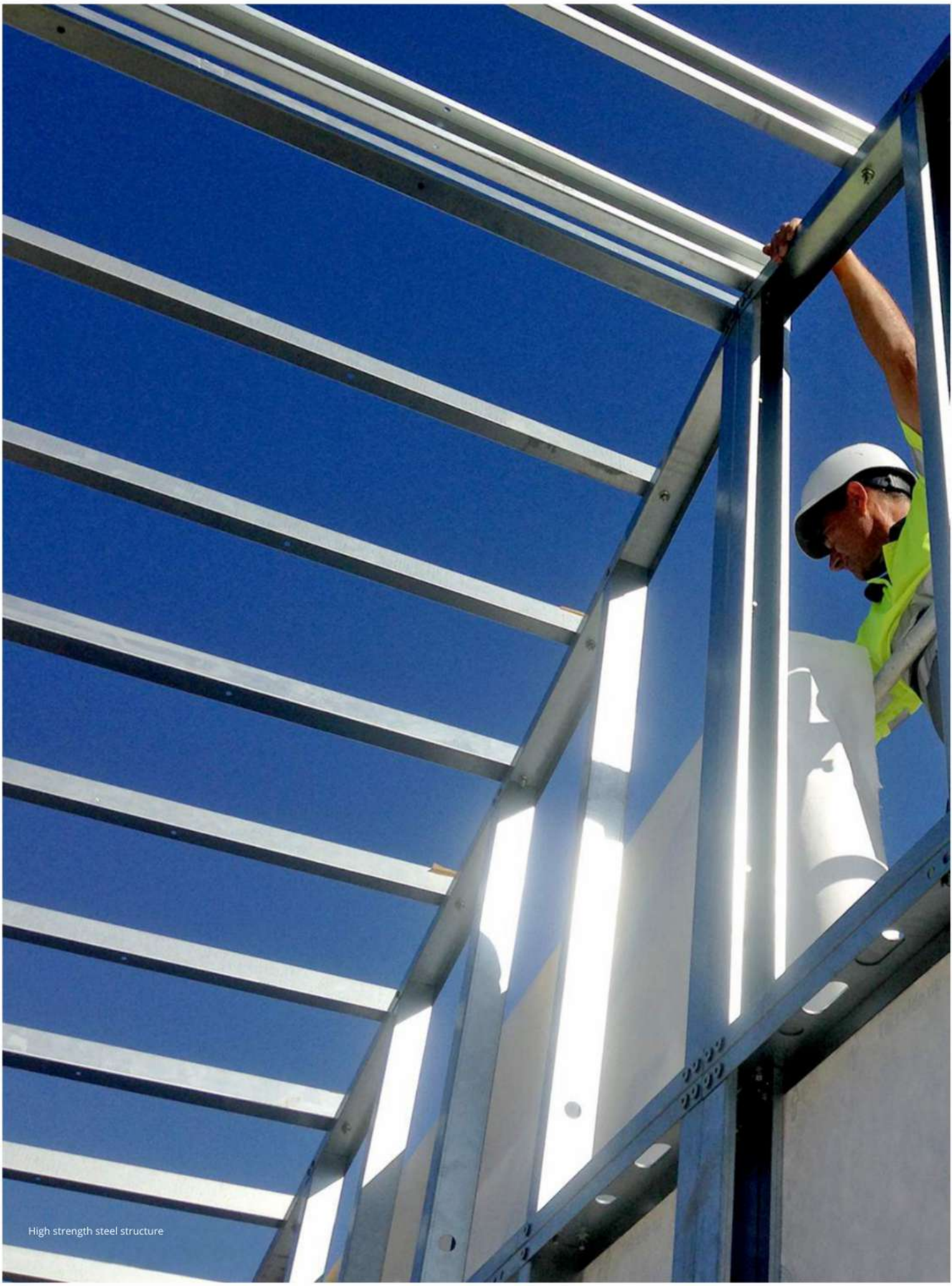
The EcoFrame building system enables the full assembly of the housing in one week, without the need of specialized personnel or auxiliary machinery.

ECONOMIC, PRACTICAL AND SUSTAINABLE CONSTRUC-TION TO SIMPLIFY SOCIAL POLICY MANAGEMENT

EcoFrame construction system

"We are able to minimize the investment of any construction project."

We provide a complete housing, i.e., structure, exterior and interior coatings, insulation, roof, electrical installations, plumbing... along with technical advice and assembly instructions at destination.



High strength steel structure

THE SYSTEM

Dry construction using galvanized steel frames is one of the most well-known and used methods of construction in the world. Its origins date back to the early twentieth century, but after World War II it began to grow until now, becoming the most efficient technological alternative to traditional systems.

It is the most commonly used building system in countries such as the US, Australia, Canada, Japan and New Zealand, as well as the fastest growing system in South America and Europe.

THE MAIN ADVANTAGES OF THE SYSTEM

- A practical, accurate, and industrialized process that allows a perfect planning.
- Excellent finishing quality.
- An easy assembly that reduces construction times.
- Structural verification based on engineering calculations.
- High resistance to seism, wind and snow.
- Increased stability. The structure remains unchanged when exposed to moisture and climatic changes.
- Fireproof construction
- High durability, anti-corrosion - even in coastal areas -, and resistance to pests and fungi.
- Improved construction site safety.
- Environmentally friendly due to a minimum use of water and waste generation.
- Steel is a 100% recyclable and reusable material.
- Optimal thermal and acoustic insulation.
- Energy saving.
- Its versatility and flexibility enables the undertaking of any type of project.
- An open and compatible system.
- Housings can be easily remodeled and expanded
- Quality standards and CE certified materials.

Factory in Spain

THE SYSTEM

EcoFrame is a technology project entirely developed by our teams in our facilities.

Architects and engineers, among other disciplines, have been gathering knowledge and experience to achieve a technologically advanced product that offers to the international market an integral constructive solution, where research, development, and innovation are key and differentiating factors.

Our fully robotized factories enable the production and handling of steel in different thicknesses in order to be more efficient in its assembly and avoid structural losses.

Our facilities include 10,000 m2 for the processing of raw materials - i.e. sheet metal coil - into metal frames and 1,300 m2 of technical area.

We only use the high-strength galvanized steel Z600 used in the automotive industry. It has a zinc coating two times thicker than other solutions, increasing its durability and resistance even in coastal locations.

Z600 Steel Structures. High Performance and Durability

WE USE THE SAME STEEL AS THE AUTOMOTIVE INDUSTRY

Our structures operate like a vehicle chassis. Everything is adapted not only to its structural capacity, but to the other elements of the housing: electricity, plumbing, sanitation, insulation, enclosure or roof...

Small work teams. No need of auxiliary machinery in the construction site.

IN-HOUSE DESIGN, ENGINEERING AND MANUFACTURING

EcoFrame Spain has recently launched to the international market an industrialized and standardized construction system, acting under the universal concepts of reliability, ease, economy and sustainability.

ABSOLUTE RELIABILITY

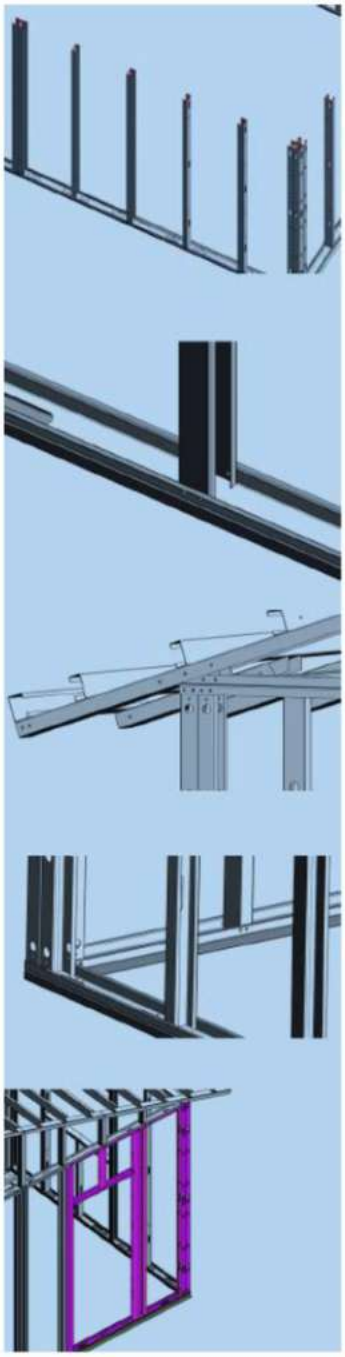
EcoFrame is a 100% industrialized system that solves all the home building processes under a controlled environment, ensuring a uniform, high-quality finish.
Our robotic mass production system allows repetitive processes that facilitate the standardization of the final product and the adoption of the most stringent quality controls.

Pre-mounted kits of electrical systems with quick connections.

QUICK AND EASY ASSEMBLY

- No need of specialized personnel. The same staff can assemble 100% of the house.
- No need of auxiliary machinery in the construction site.
- Dry construction requires a minimum use of water.
- Vertical mounting.
- No special parts or stiffeners required.
- A single screw type for assembly.
- Symmetrical frames that prevent errors and simplify assembly.
- Lower frames with edges to facilitate the support of the panels.
- Leveling frames included.
- Pre-mounted kit of electrical and hydraulic systems with quick connections.

THE SYSTEM



ECOFRAME VERSUS THE TRADI-TIONAL STEEL FRAME SYSTEM

- EcoFrame is an industrialized system that offers a comprehensive solution to the design and management of all kinds of construction projects.
- We are not in the business of selling equipment or machinery for steel processing. We are manufacturers of houses.
- With EcoFrame, you will not need to invest in Steel Frame machinery, maintenance, assistance or royalty payments.
- No need to invest in stock of raw materials like steel.
- No need of highly qualifierd workers, since the EcoFrame system incorporates all structural calculations according to CTE and Eurocode adapted to the local standard.
- No need of software or licensing fees.
- There are no limitations in terms of width, height or shape of the frame section, which are usually determined by the machine model.
- There are no limitations in terms of thickness of the steel Sheet.
- The use of high performance steel in our structure allows a frame by frame mounting of the house without cross sections or special joints.
- High strength steel Z600.
- The strength of the frames eliminates the need of reinforcements in the joints.

THE SYSTEM

- Highly secure structure, nominal capacity of frames 30-60%
- Frames come with customized drilled holes to fit installations.
- Roof trusses and belts designed according to the planned enclosure. Distances are customizable depending on the enclosure model.
- Screws are embbeded in frames to avoid embossements.
- Hex head screws and internal thread to stiffen the joints.

ECOFRAME TECHNOLOGY ADAPTS TO ANY TYPE OF PROJECT

OUR HOMES

STANDARDIZED SOLUTIONS

EcoFrame Spain develops research projects related to industrial production of housing and its subsequent international distribution. The possibility of delivering assembly kits as well as the easy assembly gives the product differentiating qualities, ensuring a fast and economic transportation and a quick assembly at the final destination.

Standardized housing models based on EcoFrame technology come with pre-assembled galvanized steel high-performance frames and include coatings and insulation that allow finishes of greater comfort and roominess inside the house.

We provide our customers with all the necessary materials for the construction of the houses under contract, which are shipped to the destination in 40 feet containers.

Easy assembly, no need of specialized personnel

INNOVATION AND TECHNOLOGY APPLIED TO AFFORDABLE, LIVABLE AND SUSTAINABLE HOUSING

We also include:

- Assembly Team Training (team training at destination for a limited time, according to project)
- Technical Assembly Assistance (follow-up of assembly processes and their quality)
- The tools needed for the housing assembly.
- Installation Manual.

OUR HOMES

ADAPTABLE TO ANY HOUSING PLAN

We manufacture and export a functional housing model that will respond to the requirements of any Social Housing Development Program.

The house is divided into two areas, an enclosed one (for a private use), and an open one. The open area houses an open and flexible space with a kitchen, a dining room and a living room. This area is connected with the outside through an exit from the kitchen. The private area includes a bathroom and two bedrooms.

Special care has been taken to ensure natural ventilation and lighting of all rooms, favoring cross ventilation in both directions.

Access to housing is made through the main façade through a covered porch.

EcoFrame standard homes

3D floor plan of 60,63 m2

OUR STANDARD HOMES HAVE THE FOLLOWING ROOMS:

- Living room
- 2 bedrooms
- Bathroom
- Kitchen
- Front Porch

AVAILABLE SURFACES FOR PURCHASE:

- **60,63 M2**
- **53,21 M2**

A SIMPLE PROCESS IN 4 STEPS

1 Light structures require a simple foundation by a concrete slab of a variable thickness depending on the type of construction.

It is not necessary that the soil has a high bearing capacity, since the total weight of an individual house is low. For a one level house, it is sufficient to have a soil with an allowable stress of 0.05 MPa, which is quite common.

2 The frames forming the bottom of the structural framework will be placed on a leveled concrete slab. The bottom frame has connecting elements with the vertical ones.

Once the structural framework has been raised and for the complete sealing of the inner chamber of the house, an insulating waterproof sheet - also called a vapor barrier - is placed on the outer face of the vertical frames before placing exterior cladding panels.

3 Vertical panels are not load-bearing panels, but they provide stability to the horizontal displacements of the structure. Its main function is to serve as an enclosure or indoor separation.

Thermal and acoustic insulating material such as rock wool or fiberglass is introduced in the gap between panels.

4 Outer panels are sealed by elastic and weather resistant sealing compound.

The panels support any type of finish, either mortar, paint or coating.

We use traditional ceramic tiles with battens although the system allows any type of roof, either sandwich panel, corrugated sheets, or any other dry material.

OUR HOMES

USED MATERIALS

STRUCTURE

Made of lightweight galvanized steel frames Z-600 (600g/m2 zinc equivalent to "42 microns thick on both sides", with an outdoors lifespan of up to 50 years).
The assembly of the structure is performed with a single screwtype.

EXTERIOR WALLS

- EcoFrame metal frame 80 mm wide.
- Inwardly, 15 mm plasterboard plate.
- Semi-rigid glass wool insulation of 75 mm and RT 2.35 m2K / W and thermal conductivity 0.036.
- Waterproofing and vapor barriers type Tyvek.
- Cement board 12.5 mm thick with fiberglass reinforced surfaces.
- Exterior finish made of 4 mm mortar, which contains cement, lime and white resins to provide more durability.

The panels are attached to the structure using self-tapping screws.

INTERIOR WALLS

- EcoFrame metal profile 60 mm wide.
- Plasterboard plate 15 mm thick.
- Semi-rigid glass wool insulation 65 mm thick and RT 1.8 m2K / W, and thermal conductivity 0.036.
- Plasterboard plate 15 mm thick.

Once the assembly is completed, its planimetry and finish is far superior than traditional systems.

a.- Cement board.
b.- Vapor barrier.
c.- Glass wool insulation.
d.- Plasterboard plate.
E. Plastic paint.
F.- Aluminum sliding windows.
G. False ceiling with plate and insulation.
h.- Ceramic tile ridges.
I. Ceramic flooring.

FULL ASSEMBLY IN 1 WEEK (INCLUDING INSTALLATIONS)

OUR HOMES

ecoFrame SPAIN

CONSTRUCTIVE ENGINEERING

ROOF AND CEILING

The roof consists of a metal frame structure forming three trusses on which we place the metal straps that hold the ceramic tiles and their special pieces (ridge, eaves, etc...) that cover the house, which is an entirely dry construction. Inside, the house has a false ceiling made of 12.5mm plasterboard panels on its metal frames, with glass fiber insulation of 80 mm.

Roof and ceiling detail

EXTERIOR CARPENTRY

White aluminum carpentry with two sliding doors and block system.
A single leaf tilting window will be placed in the bathroom.

PLUMBING, ELECTRICITY AND SANITATION

All material needed for plumbing, sanitation and electricity from floor level is included.

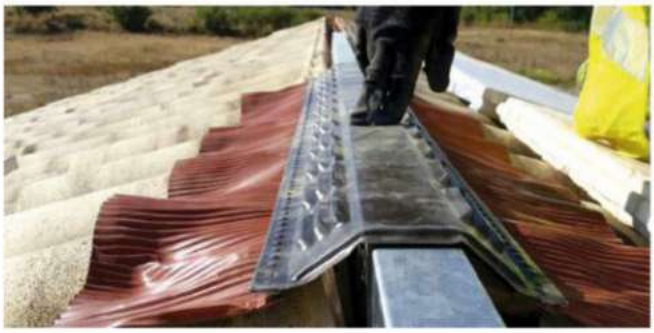
Built-in installation, hidden in the façade enclosure and inner walls.

COATINGS

The house will be furnished with ceramic tile floors.
The bathroom and kitchen walls will be furnished with ceramic tiles.

Small work teams

OUR HOMES



1.- Symmetrical steel profile

2.- Waterproofing and vapor barriers

3.- Exterior walls with cement board reinforced

4.- Thermal and acoustic insulation semi-rigid glass wool

5.- Pre-mounted kit of electrical and hydraulic systems with quick connections

6.- Roof solutions (dry-construction)

OUR HOMES

ecoFrame SPAIN

CONSTRUCTIVE ENGINEERING

CERTIFIED QUALITY

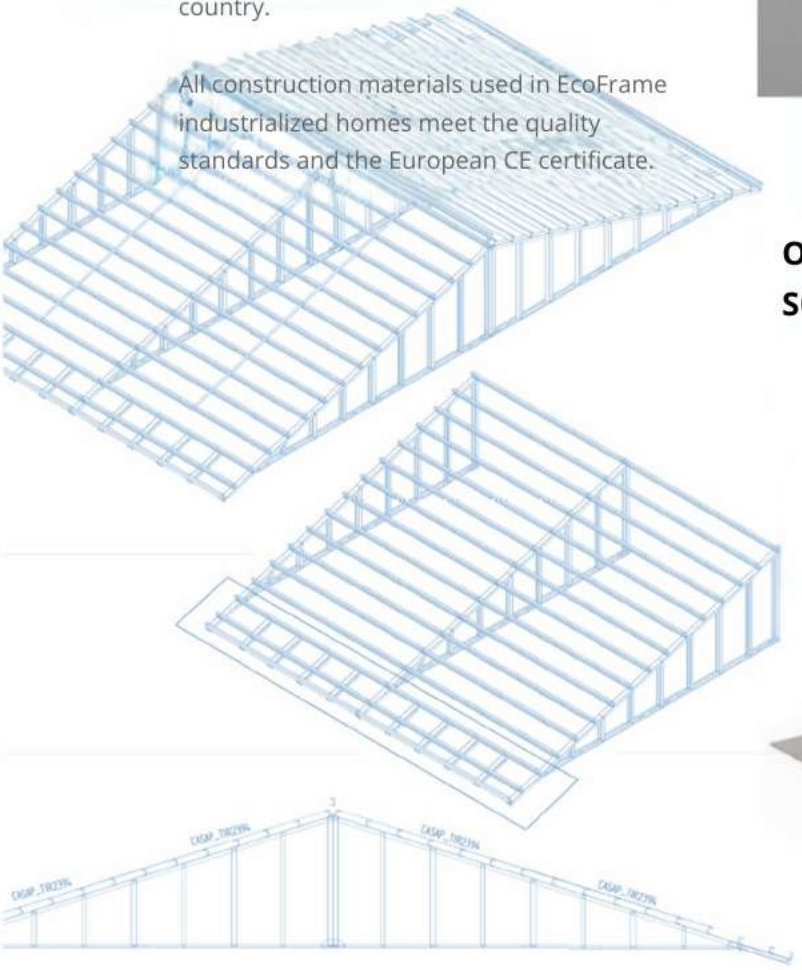
We manufacture with norms and standards of the highest level.

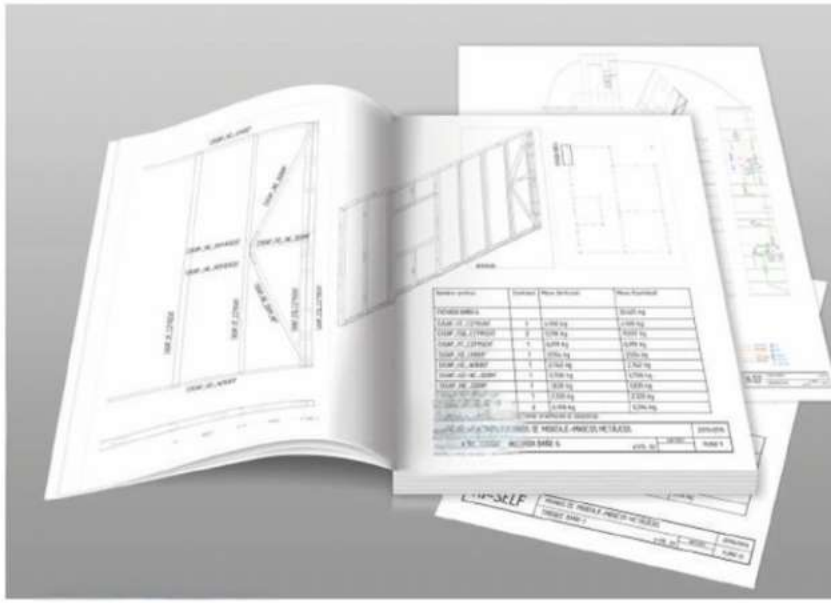
Our structures meet the Eurocode and CTE standard.

We also comply with seismic regulations NCSE-02.

The design of the structure will be adapted to comply with the legal regulations of each country.

All construction materials used in EcoFrame industrialized homes meet the quality standards and the European CE certificate.





Assemby instruction manual

OTHER SOLUTIONS

Single/family townhouses

FINISHING OPTIONS

			CORE	STANDARD	
1.-STRUCTURE (WALLS, FACADE, ROOF)A, CUBIERTA)		Galvanized Lightweight Steel Structure Hi-SELF Type according to Project	○	○	
2.-ENCLOSURE	2.1.- FACADE ENCLOSURE	Vapor Barrier+Cement Panel+Paint Finish	○	○	
		Vapor Barrier+Cement Panel+White Morter Finiss			OP
		Cement Panel+Vapor Barrier+Facade Finish Panel			OP
		Vapor Barrier+Cement Panel+ SATE System Finish			OP
		Internal facade enclosure insulation	○	○	
		Interior enclosure finish of plasterboard plate (1 plate)	○	○	
		Interior enclosure finish of plasterboard plate (2 plates)			OP
	2.2.- INTERIOR WALLS	Plasterboard plate, no inner partition wall insulation	○	○	
		Plasterboard plate, with inner partition wall insulation			OP
		Double plate plasterboard with inner partition wall insulation			OP
	2.3.- FALSE CEILINGS	Plasterboard continuous false ceiling system	○	○	
3.-ROOF	3.1.- TILING WITH CEILING INSULATION	Mixed Ceramic Tile with special pieces (Dry-construction)			OP
	3.2.- RIBBED SANDWICH PANEL	Ribbed White Sandwich Panel			OP
	3.3.- TILED FINISH SANDWICH PANEL	Tile-like finish Sandwich Panel			OP
	3.4.- WAVY TILE CEMENT PANEL WITH CEILING INSULATION	Gray corrugated cement board	○	○	
	3.5.- TILE-LIKE CEMENT PANEL WITH AUTOPROTECTED SHEET FINISH	Cement Panel, Autoprotected Sheet Tegola tile-type			OP
4.-ELECTRICAL INSTALLATION	4.1.- ELECTRIC BOX, PROTECTIONS AND CIRCUITS	Electricity supply, main electric box with 4 circuits and protections. Circuit kit with self-protected hoses and fast connection.		○	
	4.2.- MECHANISMS	Mecanismos serie Standard		○	
		Design Mechanisms			OP
	4.3.- LIGHTNING	Decorative ceiling lamp socket			OP
		Downlight			OP
		Downlight Led lamp			OP

○ Included

OP Optional equipment

FINISHING OPTIONS

ecoFrame SPAIN

CONSTRUCTIVE ENGINEERING

			CORE	STANDARD	
5.- PLUMBING AND SANITATION INSTALLATION	5.1.- SUPPLY, TANK, DISTRIBUTION	Supply and distribution pipes to wet cores		○	
		Domestic water storage tank			OP
	5.2.- TAPS AND CUT-OFF SWITCH	"Standard" bath taps		○	
		"Design" bath taps			OP
	5.3.- BATHROOM FIXTURES AND VALVES	"Standard" toilet		○	
		"Design" toilet			OP
	5.4.- DOMESTIC HOT WATER INSTALLATION	Distribution pipe for domestic hot water			OP
	5.5.- DOMESTIC HOT WATER PRODUCTION SYSTEM	Electric Thermal Storage Heater			OP
		Solar storage tank			OP
6.- INTERIOR CARPENTRY	6.1.- STANDARD CARPENTRY BLOCK SYSTEM			○	
	6.2.- QUALITY CARPENTRY BLOCK SYSTEM				OP
7.- ALUMINIUM EXTERIOR CARPENTRY	7.1.- WINDOWS	Single-pane sliding glass windows		○	
		Double-pane sliding glass windows with camera			OP
		Sliding window with blind			OP
		Security window bars			OP
	7.2.- EXTERNAL DOORS	Lacquered aluminum frames door		○	
		Steel lacquered security door			OP
8.- INTERIOR CLADDINGS	8.1.- BATHROOMS AND KITCHEN	Vinyl coating			OP
		Ceramic coating		○	
	8.2.- GENERAL FLOORING	Ceramic coating			OP
		Laminate wood flooring			OP
9.- CLIMATE CONTROL	9.1.- PREINSTALLATION	Cooling lines, recessed connection kit and drains			OP
	9.2.- AIR CONDITIONER SPLIT TYPE	Bedroom device (2500 kilocalories/h)			OP
		Room device (4000 kilocalories/h)			OP
10.- INTERIOR PAINTING	10.1.- ONE-COAT INTERIOR PAINT			○	
	10.2.- TWO-COATS INTERIOR PAINT				OP
11.- KITCHEN FURNITURE	11.1.- KITCHEN WORKTOP WITH SINK AND TAPS				OP
	11.2.- KITCHEN FURNITURE				OP

SUSTAINABLE SOLUTIONS

More than 40% of the world's population is in need of housing, basic infrastructure and sanitation. More than 96,000 homes will need to be built worldwide on a daily basis by 2030 to solve this problem.

The challenge facing today's construction industry remains fundamentally the use of building materials with low environmental impact, as well as reducing other impacts related to energy consumption and waste generation.

At EcoFrame Spain we are aware of this issue and our solution is a low cost Building System, which is environmentally and people-friendly.

INDUSTRIALIZED HOMES FOR A BETTER WORLD.

- 100% dry construction, without water consumption.
- Reduction of waste on site.
- It uses non-polluting materials.
- Steel is fully recyclable.
- Insulation material enabling energy-efficiency.
- High durability and resistance.
- It reduces the labor risk.
- It is affordable and facilitates the access to decent housing to a greater number of people.

ecoFrame

SPAIN

STEEL FRAME
SYSTEM

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Version: August 2025

ecoFrame SPAIN