

# HÖRN | lusen

## FRP Products and Solutions Brochure

[www.hornfrp.com.co](http://www.hornfrp.com.co)  
[www.lusen.com.co](http://www.lusen.com.co)

V. 1.0.28/02/2024

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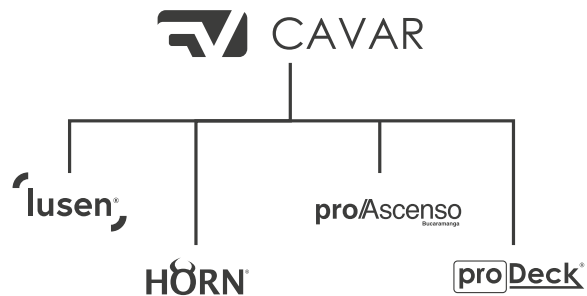
Profiles  
Ladders  
Scaffolding  
Cable tray

Poles  
Crossarms  
FRP Structures  
Staircase system

# We are CAVAR

We are CAVAR SA, a business group with over 40 years of experience, passionate about work, innovation, and creating systematic value for the industry and society. Through our brands, we focus on quality at every step and excellence in our products, constantly evolving.

## Our brands



## Certified by



ISO 9001:2015 Quality Management System Certification



FRP Ladder Certification ANSI ASC A14.5-2017.



Sello de Buenas Prácticas de Innovación



UL-568 Cable Tray Certification



ANSI A10.8-2019 Dielectric Scaffold Certification





# Benefits of FRP products



Corrosion  
Resistance



High  
Strength



Thermal  
Insulation



High environmental  
resistance



Flame-retardant



Lightweight



Cost-Effectiveness



Electrical  
Insulation





**HORN**<sup>®</sup>

Circular staircases  
and pedestrian  
pathways for  
storage tanks

Tecnoquímicas  
2022



# Products

HORN® Catalog

We develop, produce, and promote products and tools made from fiberglass reinforced plastic (FRP), which are highly suitable for hostile environments, exposure to chemicals, corrosive agents, and settings with electrical hazards.



Modular scaffolding



Cable tray



Portable fiberglass ladders



Industrial staircase system



Industrial floor systems



Customized FRP structures



Poles



Crossarms



# Modular scaffolding

Modular scaffolding is ideal for working at heights, where versatility is as important as safety. They are made of Fiber Reinforced Plastic (FRP), a composite material with multiple advantages: it is non-conductive, lightweight, has high mechanical strength, and is not affected by corrosion.



Load capacity  
**500lb**  
(227kg)

Working height  
**5m**  
(2 sections)

A limit of  
**1**  
People

Dielectric  
**50kv**  
Dielectric strength



Load capacity  
**500lb**  
(227kg)

Working height  
**15m**  
(10 sections)

A limit of  
**2**  
People

Dielectric  
**50kv**  
Dielectric strength

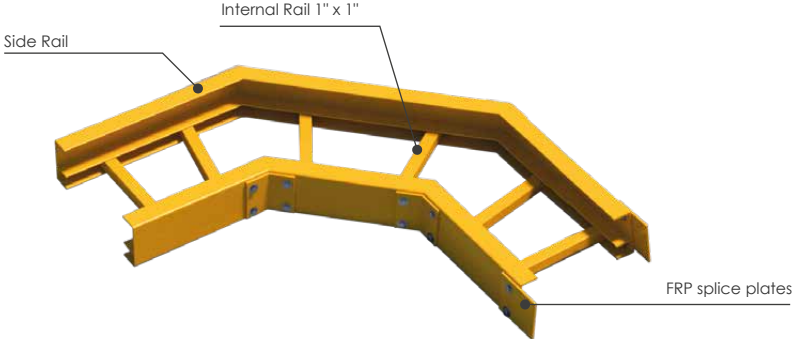
Certified by



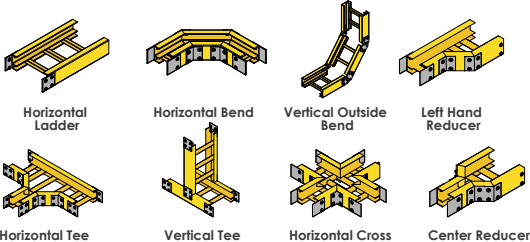


# Cable tray

Fiberglass cable trays are engineered to meet internationally recognized standards and specific project requirements. They come in different kinds of resin and shapes to handle tough environments. Lightweight yet durable, fiberglass trays offer numerous advantages over galvanized or stainless steel, including corrosion resistance. These trays are the best choice for tough and corrosive environments because they meet very high quality standards and have experts in composites.



## Typologies



## Certified by



Certified by RETIE  
 Article 20, numeral 20.3  
 CABLE TRAYS and UL  
 568:2019 standard.

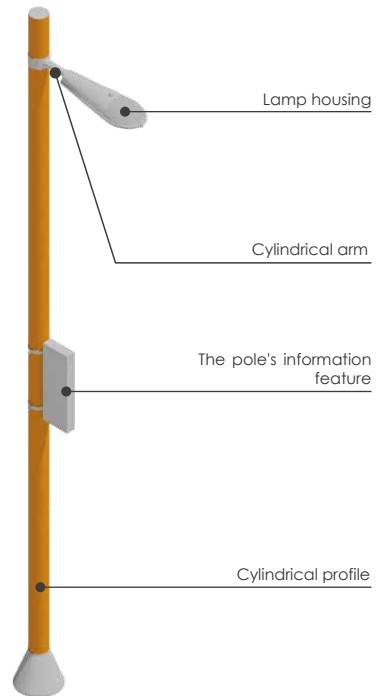




# Poles

Ornamental and light poles made from fiberglass reinforced plastic (FRP) combine visual attractiveness with outstanding durability. Suitable for various uses, these poles beautify urban environments, parks, and commercial areas with their stylish designs while delivering dependable lighting solutions.

FRP poles are resistant to degradation from harsh environmental factors, making them an excellent option for outdoor use. This durability minimizes maintenance expenses and guarantees that the poles stay both aesthetically pleasing and functional for many years.



## Conical pole



2"



4"

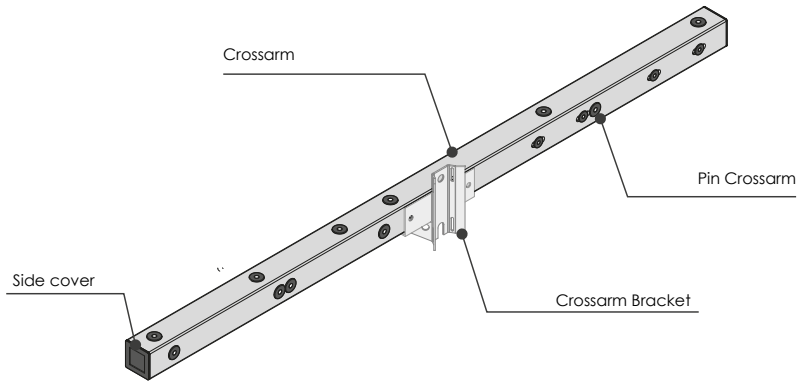


6"

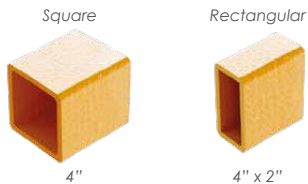


# FRP Crossarms

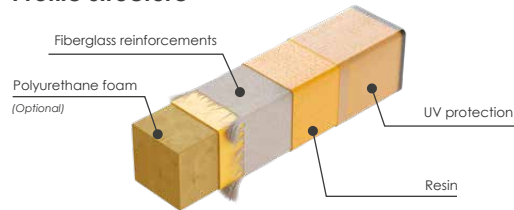
FRP crossarms to manage transmission and distribution systems, designed for strength and resilience, these components are essential in supporting overhead electrical lines while providing a lightweight and durable alternative. Crossarms are engineered to withstand harsh environmental conditions, including extreme temperatures, humidity, and corrosive elements; offers excellent resistance to degradation, ensuring a longer lifespan. This durability translates into reduced maintenance costs and fewer replacements over time, making FRP crossarms a cost-effective solution for utility companies.



## Geometries



## Profile structure





## Portable fiberglass ladders

Portable ladders made of fiberglass are designed according to the American standard ANSI A14.5, they are intended to be used in industrial and commercial environments where electrical safety is required with a light and resistant ladder that can withstand adverse environmental conditions. Dielectric product, easy to handle. Ladders from 2 steps to 54 steps.



*Straight ladder*



*Extension ladder*



*Splice plate extension ladder*



*Pole ladder*



*Manhole ladder*



*Cable hook ladder*



*Light-weight ladder*



*Self supporting extension ladder*



*Stepladders*



*Platform ladder*



*Work stand*



# Industrial staircase system

We manufacture stair systems for practically any environment, from office spaces to manufacturing facilities, using fiberglass reinforced plastic (FRP). This material is highly suitable for hostile environments, as it withstands exposure to chemicals, corrosive agents, and electrical hazards. Whether you need a specific stair layout with multiple landings, U-turn stairs, or a custom Rise/Run, we can accommodate these unique designs to meet your requirements.



*Fixed Ladders*



*Spiral staircases for storage tanks*



*Stairs platforms & Stairs towers*

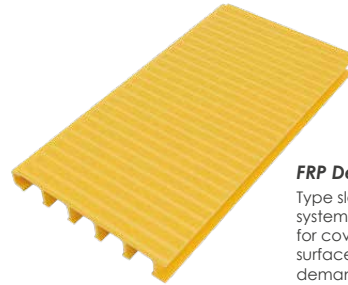




# Industrial floor systems

FRP industrial floor systems are designed to withstand heavy loads while offering excellent resistance to corrosion and chemicals, making it suitable for environments such as chemical plants, wastewater treatment facilities, and manufacturing plants.

These systems including grating, decks, and non-slip strips, are transforming the landscape of industrial facilities.



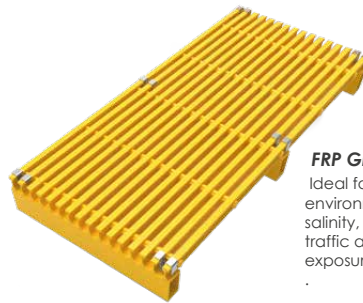
## **FRP Deck Panels**

Type slatted flooring systems, ideal for covering high traffic surfaces in highly demanding conditions



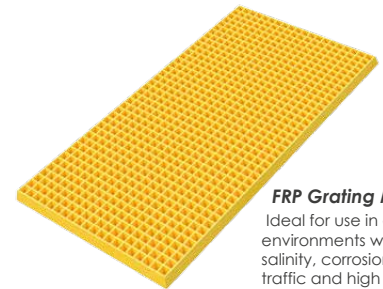
## **Non Slip FRP Strips**

Excellent complement for wood, concrete, ceramic or metal floors.



## **FRP Grating Pultred**

Ideal for use in demanding environments with high salinity, corrosion, constant traffic and high chemical exposure.



## **FRP Grating Molded**

Ideal for use in demanding environments with high salinity, corrosion, constant traffic and high chemical exposure.



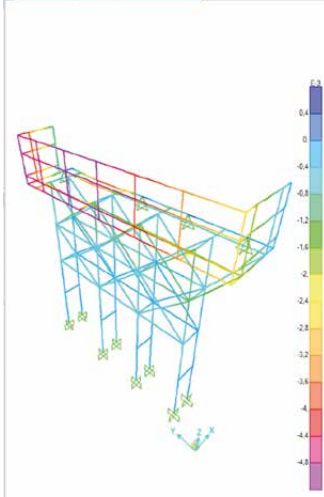
# Customized FRP structures

Fiber Reinforced Polymer (FRP) structures that are customized to meet specific project requirements offer unparalleled versatility and performance. With the ability to design elements that meet unique dimensions, load requirements, and environmental challenges, these structures provide solutions that traditional materials often cannot. Their lightweight nature facilitates easier transportation and installation, while their inherent corrosion resistance ensures durability in harsh conditions.



## Conceptualizing and designing

Custom designs will be tailored to the client's needs and the location where they will be installed.



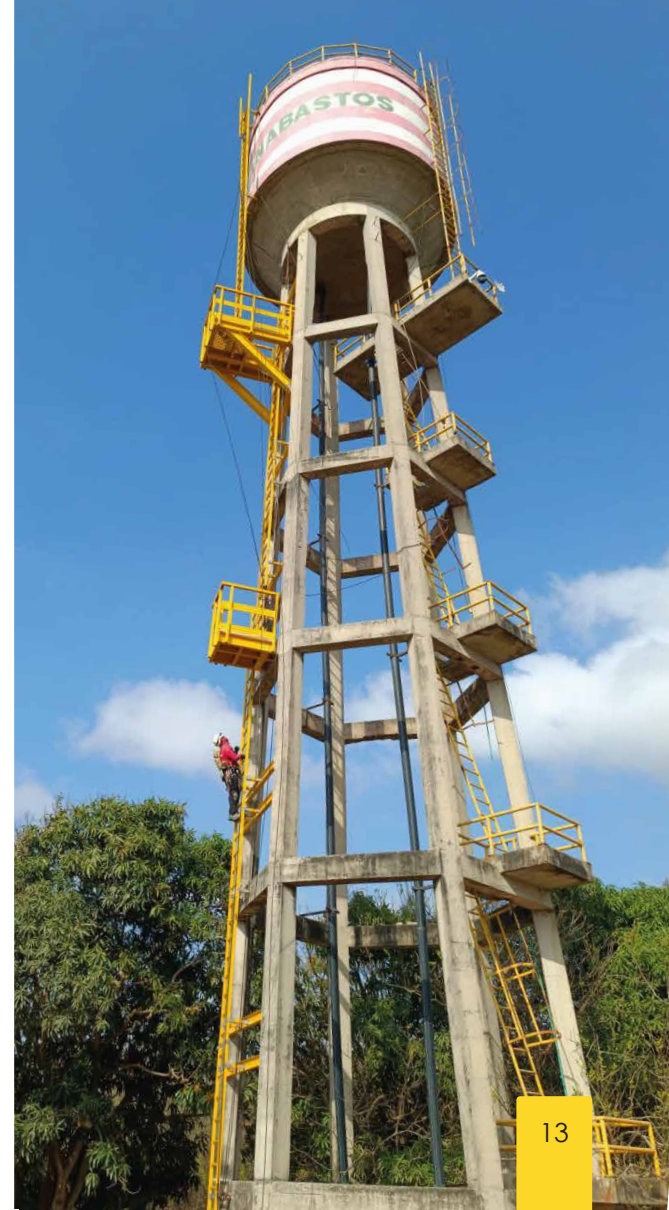
## Structural analysis design

Analysis of the structures that ensures their safety and strength against the loads and stresses to which they are subjected.



## Modular construction

Manufacturing of structures as modular systems for easy installation and transport.



## *Fiberglass platforms, mezzanines, walkways and catwalks*

*Used to provide safe access and circulation in elevated areas. Either self-supporting or anchored, they adapt to the specific height, length, and width requirements of each space.*

## *Fiberglass walls panels*

*We blend aesthetic and mechanical attributes for the renovation of unique spaces that adapt to the ideas and needs of each project, with easy and quick installation.*



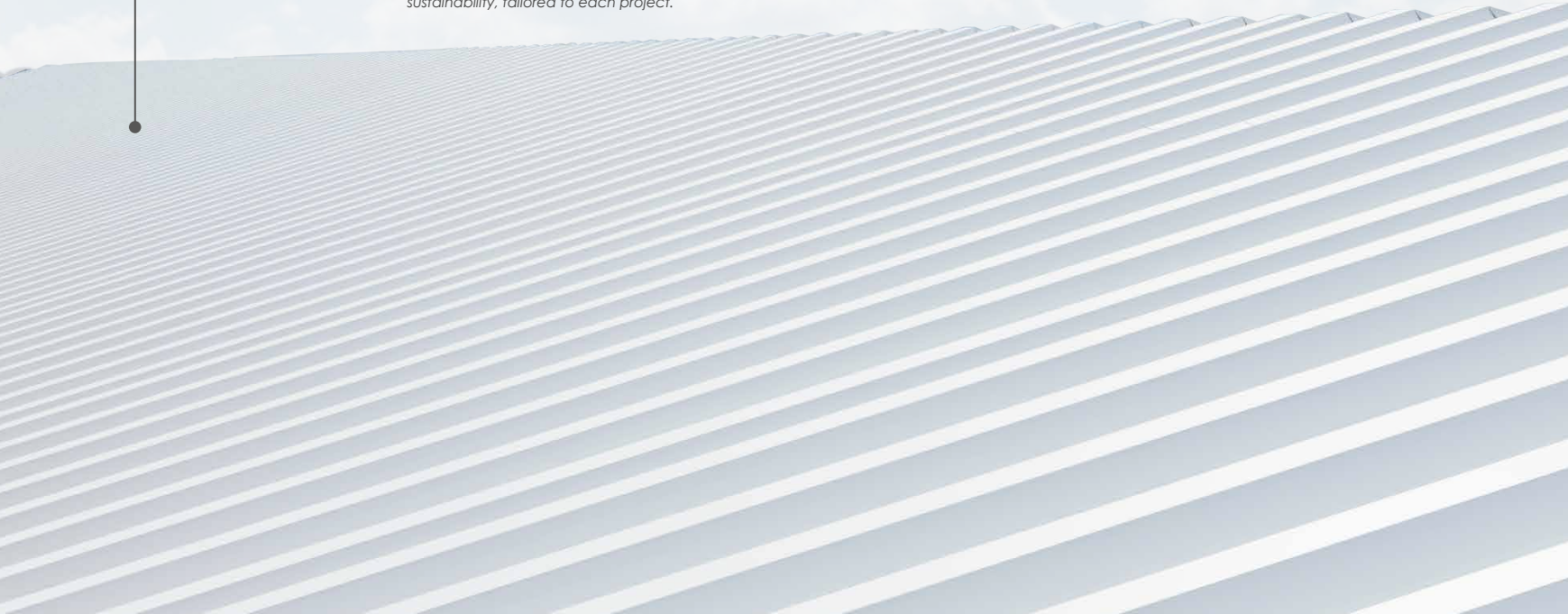


# HÖRN | IUSEN

We design FRP projects that combine structural systems, fiberglass roofing sheets, and enclosures, providing an efficient, durable, and versatile solution for a wide range of architectural and industrial applications.

## *Fiberglass roofing sheets*

*We manufacture fiberglass roofing sheets that control and harness environmental factors, transforming them into comfort, safety, ROI, and sustainability, tailored to each project.*







**lusen**<sup>®</sup>

FRP housing  
for electrical  
substation

Luz del Sur  
2023

# Products

Lusen® Catalog

We manufacture covers, sheets, roofing, and solutions in FRP (Fiberglass Reinforced Plastic) for construction in harmony with the elements. We apply our expertise in design and architecture to develop products that not only meet the most stringent production processes but also stand out for their design and style.



## Traslusen

*Fiberglass Translucent  
roofing sheets*



## Solidlusen

*Block-out  
roofing sheets*



## lusencolors

*Colored Fiberglass Translucent  
roofing sheets*



## lusentextures

*Textured fiberglass  
roofing sheets*



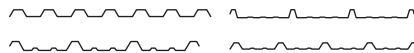
# Traslusen | *Fiberglass Translucent roofing sheets*

Translucent roofing sheets made of fiberglass reinforced plastic (FRP) are the perfect solution for demanding environments, offering low maintenance and excellent weather resistance.

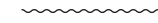


## Geometries

### Trapezoidal



### Wave



*Availability of shapes according to demands and/or project.*

## Size

1,83- 2,44 - 3,05 - 3,66

*Dimensions in meters; If you need further assistance, let know us!*



## Block-out roofing sheets | **Solidlusen**

Block-out roofing sheets made of fiberglass reinforced plastic (FRP), designed with a smooth and uniform exterior finish, allowing them to reflect a high percentage of light and solar energy, reducing heat buildup in the interior space.



### Colors

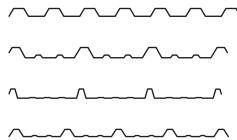
Personalized color schemes



### Geometries

Availability of shapes according to demands and/or project.

#### Trapezoidal



#### Wave



### Size

1,83- 2,44 - 3,05 - 3,66

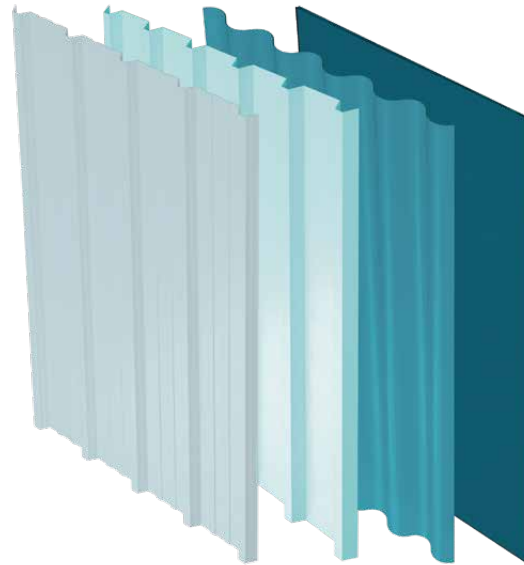
*Dimensions in meters; If you need further assistance, let know us!*





# luscencolors | Colored Fiberglass Translucent roofing sheets

Translucent-colored fiberglass roofing sheets: Take advantage of natural lighting to illuminate your spaces with style and durability. Ideal for roofing, envelopes, and enclosures of living, commercial, and institutional projects. Discover our wide range of colors and customize your project.



## Geometries

### Wave

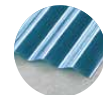
*Availability of shapes according to demands and/or project.*

## Size

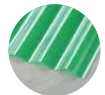
1,83- 2,44 - 3,05 - 3,66

*Dimensions in meters; If you need further assistance, let know us!*

## Colors



Blue



Green



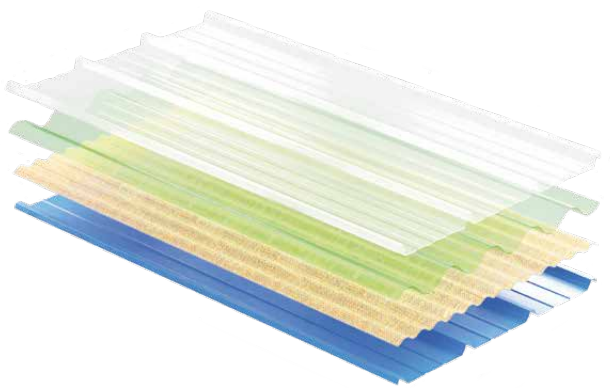
Gray



Red

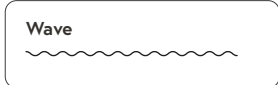
# Textured fiberglass roofing sheets | lusenotextures

Textured fiberglass roofing sheets with natural fabrics within. High durability and low maintenance are the perfect solution for roofs and pergolas covering, terraces, patios, or any other architectural space where aesthetics are as important as natural lighting.

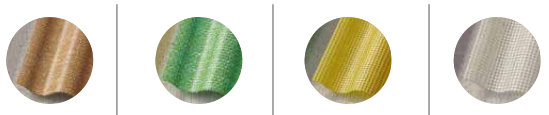


### Geometries

Availability of shapes according to demands and/or project.



### Variety of textures



### Size

1,83- 2,44 - 3,05 - 3,66  
*Dimensions in meters; If you need further assistance, let know us!*





# Customer promise

Our extensive experience in design and production with composite materials enables us to deliver products and services that prioritize quality, evident in all our solutions.

Design and measurement



All our products are custom-made, taking into account the specific needs of the client and the characteristics of the space where they will be used.

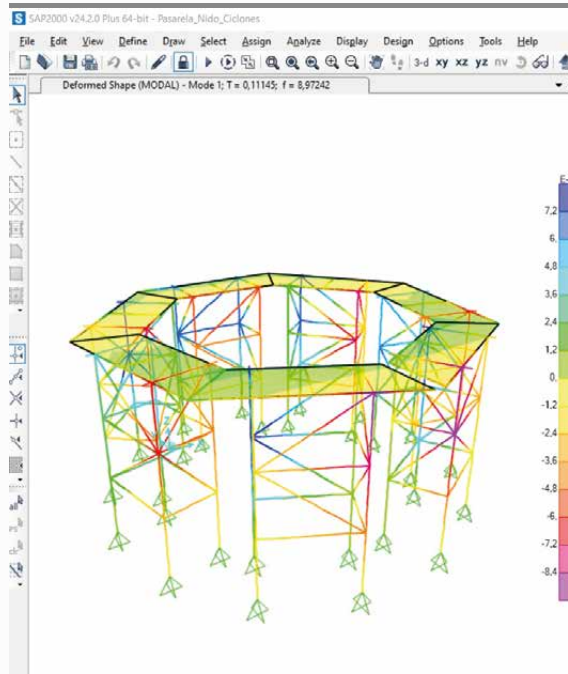
Concept development and visualization



Through photorealistic images, we provide a more accurate visualization of projects and products before their realization.

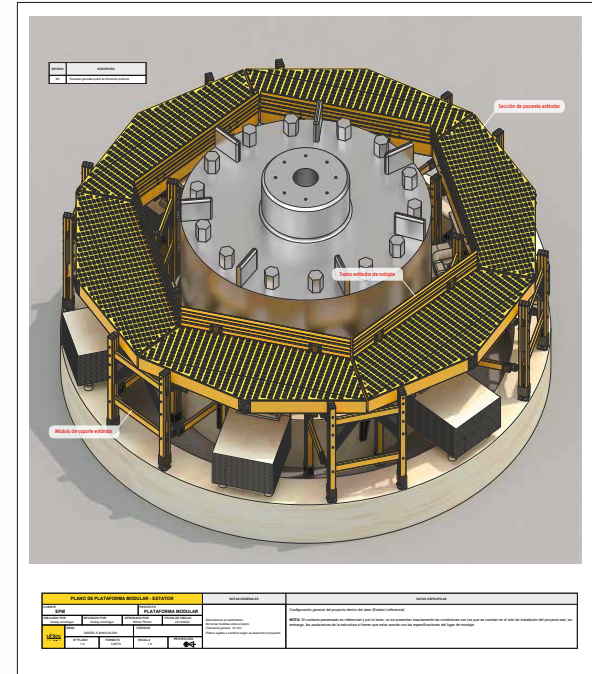
We respond to the challenges of the industry and architecture by focusing on the safety, adaptability, and durability of each product, alongside a highly qualified team that works personally to provide efficient and sustainable solutions.

## Structural analysis design



We use specialized software to create calculation reports and validate the performance of each structure, ensuring strength and stability.

## Assembly plans and handbooks



We develop documents and graphical representations to guide the assembly and installation of each product, detailing the necessary procedures.



# HÖRN® | Iusen®

*Building in composites materials*