



**#**PLANE**FIBRA**<sup>®</sup>

2022 PRODUCT CATALOG



 PLANE**FIBRA**<sup>®</sup>

# FRP PRODUCT EVOLUTION

Planefibra is always on top of the **market needs and demands**. That's how we became a reference when it comes to **FRP (Fiberglass-reinforced polyester)**. We guarantee the **durability and quality of the products developed with this material**.





# A STORY OF INNOVATION

Planefibra's story is one of innovation. This was the start of a groundbreaking enterprise in São Bento do Sul - SC, that not only **generated jobs and income, but also helped diversify and strengthen the local economy.**

The founders used their technical and administrative knowledge to **make Planefibra a reference in its sector.** Thanks to our investment in cutting-edge technology, improved methods and qualified professionals, we have had a rapid growth and have been able to conquer the market.



## OUR PRODUCTS



TRANSLUCENT  
ROOFING PANELS



TERMOPLAN®  
CONTINUOUS VAULT



TRANSLUCENT PANELS  
FOR ZIPPED METAL  
ROOFING



CORROSION  
RESISTANT ROOFING  
PANELS



FRP PANEL/TRAY  
TO COMPOSE  
THERMOACOUSTIC  
PANELS



Planefibra products **contain the best in FRP**, the innovative fiberglass-reinforced polyester.

Our products are **more resistant** because they **contain a greater amount of fiberglass, polyester veil, UV protection films and fire-resistant additives**. They allow more flexibility in projects, guaranteeing brightness and just the right amount of transparency with many options of colors, shapes and sizes.



#RC FIRE RESISTANT



PANELS FOR PERGOLAS



VENTILATION SYSTEM /INDUSTRIAL SHUTTERS



VERTICAL ROAD SIGNS



## PLANEFIBRA. GENERATING SUSTAINABILITY FOR OVER 15 YEARS.

### **SAFETY AND SATISFACTION** GUARANTEED

**Solutions for the construction and industry sectors with the quality that you trust.** Each year, Planefibra establishes itself as a reference in highly resistant and durable products. It means more savings and safety for efficient and sustainable projects.

Our company is well aware of the always **evolving construction segment.** This is why our Translucent Roofing Panels, Termoplan® Continuous Vault, Industrial Shutters and Sheets **meet the needs of a variety of projects when it comes to natural lighting and ventilation.**

## PRODUCTS THAT TARGET SAVINGS

## AND THE BEST USE OF NATURAL LIGHTING



### ENERGY SAVINGS

Products are developed to take advantage of natural lighting, prioritizing energy savings.



### QUALITY MATERIAL

High-quality materials are used in the processes to ensure that our manufactured products will last longer.



### RESISTANCE AND DURABILITY

Technology, improved methods and high-quality materials combine to create products that are resistant and long-lasting.



### PRECISION AND STABILITY

Process automatization and material quality-control generate more stability and precision for our products.



### GUARANTEE

Our project's department offers support to our clients, providing technical information in order to help in the selection of the best option for their roofing project.

## SOLUTIONS FOR A COMPETITIVE MARKET

Planefibra maintains a **modern and efficient operation at São Bento do Sul, in Santa Catarina**. Machines and equipment with cutting-edge technology, combined with efficient methods and qualified professionals **ensure the company's productivity and high-quality products**.



## WE TRANSFORM WASTE INTO ENERGY

**Planefibra's industrial waste from translucent sheet and panel production is transformed into a source of energy.** These materials are sent to BIOCONSULTORIA, located in São Bento do Sul, SC, for co-processing. After blending (grinding and separation), the residues are sent to Cia. de Cimento Itambé, **which in turn uses them as lichen in the cement blast furnace.**

With this initiative, Planefibra **abandons the landfill disposal practice.**



# TRANSLUCENT PANELS

## DURABILITY, PROTECTION AND SUSTAINABILITY FOR YOUR PROJECT

The greater amount of fiberglass in the composition of Planefibra tiles makes them **28% more resistant than the common on the market**. Modern and efficient architectonic projects count with the superior quality of Planefibra translucent panels. **Durable and highly resistant**, the products fulfill a variety of construction needs, such as roofing systems and front and side enclosures that significantly increase brightness in the environment.

The guarantee of **scheduled deliveries and specialized customer service** are competitive edges that sets Planefibra apart as a reference in its sector.



**Full compliance with the NBR 16753 code** - Specific for fiberglass-reinforced polyester - Flat sheets, panels, and continuous vaults – Requirements and testing methods. Planefibra panels are the only ones in the market with **UV protection polyester film on both sides**, as a standard finishing for all models, at no additional cost.

**PANEL WITH NO PROTECTION FILM  
COMMON PANEL ON THE MARKET**



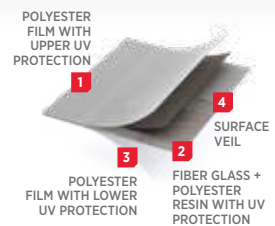
**PANEL WITH TOP  
GRADE 2  
PROTECTION FILM**



**PANEL WITH  
GRADE 1  
PROTECTION FILMS**



**PANEL WITH POLYESTER VEIL  
AND PLANEFIBRA GRADE 1 UV  
PROTECTION FILMS (PLUS)**



Planefibra also offers **safe and efficient solutions with high resistance to the spreading of flames**, in case of a fire. These are products that fulfill the demands of the construction market, considering the risk of fire in commercial, industrial and public buildings according to IT 10 (CLASS II-A).



## NATURAL LIGHTING

Natural lighting is key in sustainable projects, since taking **advantage of sunlight makes the environment more functional and enjoyable**, resulting in countless benefits for the companies:

- ✓ Energy savings due to the efficient use of sunlight.
- ✓ Short term investment return (6 to 12 months).
- ✓ More productivity due to sunlight use.
- ✓ Less visual fatigue, resulting in more quality of life and willingness to perform tasks.
- ✓ Promotes well-being in the work environment, fulfilling the psychological and physical needs, since it allows for a more comfortable and functional environment.

## DURABILITY

Technical reports show a comparison between the natural yellowing time of the Planefibra panels that receive the external film, versus the common panels found in the market which don't have that protection.

- ✓ **Verified with the polyester film.**

### COMPARATIVE IMAGE



## MODELS

We provide all panels according to the manufacturer's profile model.



### PERSONALIZED PROJETS

The compensation of the translucent panel for the thermal panel can be done regardless of how thick is the insulation.



## CODES AND SPECIFICATIONS / TESTS

### Guidance Data FBR40/980

GEOMETRICAL PROPERTIES				THERMAL COEFFICIENT	LIGHT PASSAGE		SOLAR FACTOR G	
Thickness (mm)	Weight per unit (kg/m)	Weight per unit (kg/m <sup>2</sup> )	Maximum gap between columns (m)	U (W/m <sup>2</sup> .K)	Opaque white	Transparent	Branca Leitosa	Incolor
0,80	1,43	1,45	1,80	4,40	53,28%	88,00%	57,79%	81,75%
1,00	1,78	1,82	2,00	4,40	52,82%	87,25%	57,30%	81,05%
1,20	2,14	2,18	2,20	4,40	51,40%	84,90%	55,76%	78,87%
1,50	2,67	2,73	2,50	4,40	50,37%	83,20%	54,64%	77,29%
2,00	3,56	3,64	2,80	4,40	49,40%	81,60%	53,59%	75,80%
3,00	5,35	5,46	3,00	4,40	48,52%	80,15%	52,64%	74,45%

• Density used to calculate the theoretical weight: 1.35 kg/m<sup>3</sup>; • Maximum gap between columns calculated considering translucent panel combined with metal panel, with maximum load of 60 kg/m<sup>2</sup> with maximum deflection of L/120; • Tests of the U-value according to ASTM C518, performed by LabEEE of the Federal University of Santa Catarina; • Visible light passage according to ASTM E903, test performed at Planefibra's lab; • G Solar Factor, according to ISO 9050 / ASTM E903, performed by LabEEE of the Federal University of Santa Catarina; • Minimum inclination of 5%.



# CONTINUOUS VAULT TERMOPLAN®

PERFECT FIT FOR **DIFFERENT  
ROOF FORMATS**



The Termoplan® Continuous Vaults provide **high quality in natural lighting**, for different types of buildings. They count with a **project that is innovative, the first of its kind, one that, through an air pocket, provides thermal insulation between the external and internal environments**. Our products come with **standard parts for easy installation, which ensures high performance, reliability, safety and durability**.

The continuous vaults offer a **natural diffusion of daylight**, allowing light to spread more evenly throughout the environment. It is a great natural lighting alternative with an excellent finishing. Due to its versatility, it could be used in air-conditioned environments, such as home centers, offices, dining rooms, industrial areas, sports and logistics centers.

They allow for the **best use of natural lighting**, replacing or complementing electrical lighting systems, while greatly **reducing external heat**, resulting in **energy savings and thermal comfort**.



**SHORT TERM INVESTMENT RETURN (6 TO 12 MONTHS)**

## TERMOPLAN® BENEFITS



### TEMPERATURE CONTROL

Thanks to the thermal insulation capacity provided through the air pocket, it allows for internal environment temperature control.



### PRODUCTIVITY IMPROVEMENT

It makes the environment more pleasant, improving the quality of life of those who use the building: workers, clients or visitors.



### 99% UV PROTECTION

UV protection, due to its double layer of polyester film.



### LIGHTING RETENTION

Low lighting retention, allowing for an excellent passage of white sunlight.



### SUSTAINABILITY

Sunlight is a natural and renewable resource, so when used in construction projects, it reduces the impact on the environment, creating an eco-efficient environment.



### ENERGY EFFICIENCY

By using sunlight in an environment, it is possible to considerably reduce energy consumption and costs.



### CONDENSATION REDUCTION

Due to the low thermal conductivity of the air, it reduces condensation inside the environment.



### NOISE REDUCTION

It offers a considerable noise reduction due to its design, making it ideal to soundproof environments, such as offices.

## GUARANTEED RESISTANCE

The greater amount of fiberglass in the composition of Planefibra tiles makes them 28% more resistant than the common on the market. Using the external protection film guarantees an **increase in product life, which is in average 10 years.**



## SAFETY AND WATERTIGHTNESS

The **fixation system is on the high wave, without the use of shims,** to guarantee more **security and watertightness.**





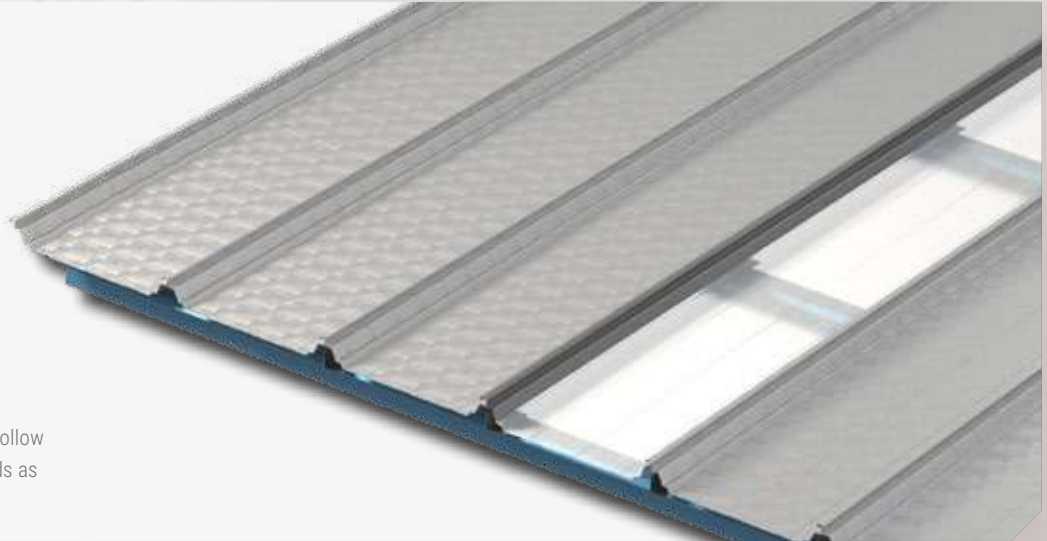
# NATURAL LIGHTING SOLUTIONS FOR **ZIPPED METAL ROOFS**

Planefibra offers a new concept in natural lighting for zipped metal roofing systems. They are FRP (Fiberglass-reinforced polyester) products that maintain the building architectural aesthetics, ensure excellent water flow and complete watertightness.

## OUR BENEFITS:

- ✓ Excellent **natural lighting passage**.
- ✓ Products **made to order** for your building project.
- ✓ **Adaptable** to a variety of roof models in the market.
- ✓ Each part comes with guaranteed **tracking ability**.
- ✓ **High standards of finishing**, maintaining the project's aesthetics.
- ✓ **Efficient, safe and highly resistant to flames**, in case of a fire.  
Your products are manufactured **according to IT 10 (CLASSE II-A)**.

OUR PRODUCTS WERE DESIGNED FOCUSING ON  
**PROVIDING PERSONALIZED SOLUTIONS FOR YOUR  
PROJECT NEEDS.**



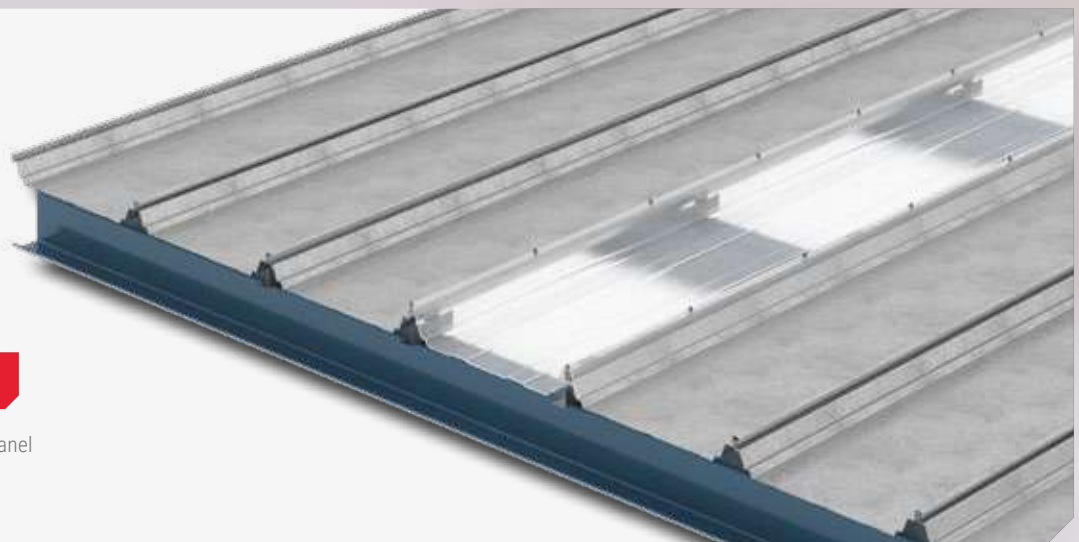
### Ziplan®

Translucent panels which follow the same building standards as the zipped metal panels.



### Termoplan® Zip

Continuous Vault for zipped metal roofs.



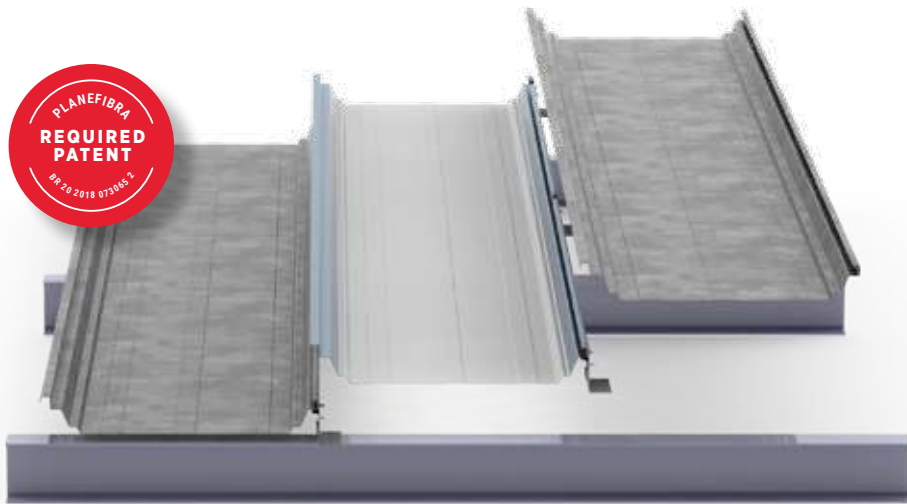
### Standard Zip

Standard translucent panel for zipped metal roofs.

# ZIPLAN®

THE ZIPLAN SYSTEM MAY BE **PRODUCED ACCORDING TO THE PANEL PROFILE NEEDS AND THE BUILDING PROJECT.**

Besides guaranteeing the project aesthetics, it also ensures an excellent water flow and complete watertightness, because the **fixation is made through a zipping system**, resulting in an easy to apply and assemble roofing system.



- ✓ It allows for an excellent **natural light passage**.
- ✓ Excellent sealing, **ensuring 100% watertightness**.
- ✓ **Easy to assemble**, through a zipping system.
- ✓ **Adaptable** to all the different panel models found in the market.
- ✓ Each part has an individual tracking number, to guarantee traceability.
- ✓ **Offer fire resistant solutions – IT 10 class II-A.**
- ✓ Exclusive project, with **patent required by PlaneFibra**.





ZIPLAN, Planefibra translucent panel, manufactured in **FRP (Fiberglass-reinforced polyester)**, with **zipped system fixation** and adaptable to all the different panel models found in the market.



Our ZIPLAN® system **allows the manufacture of lighting windows** - when using the translucent tile in the center of the roof distributing the lighting points.



It does not interfere in the structural dimensions, since it is lighter than the roof tile that will be removed for the panel installation, according to our **TECHNICAL MANUAL**.



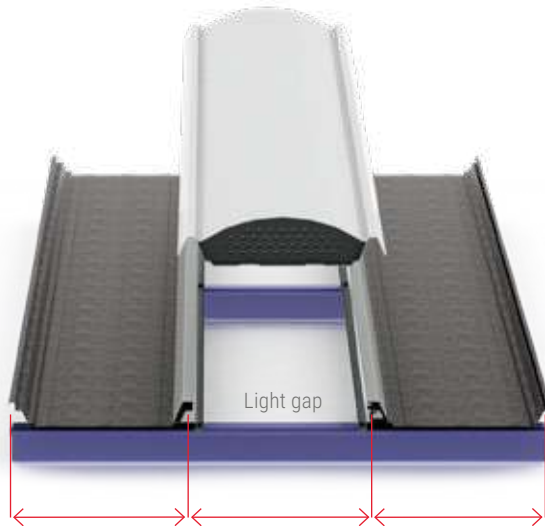
Installation may be performed by the client's own team, with Planefibra's technical support, as needed.



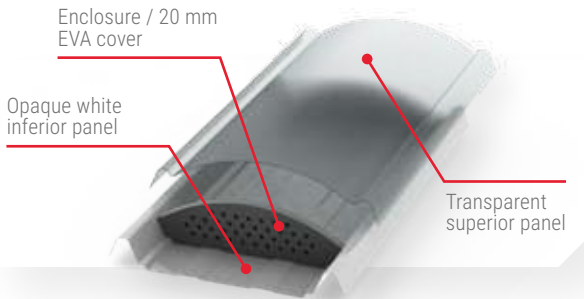
We recommend a light cleaning (water and neutral dishwashing liquid) every semester or every year, depending on the amount of suspended air particles on site. **According to our manual – TRANSLUCENT ROOFS CLEANING AND INSPECTION.**

# TERMOPLAN® ZIP

## CONTINUOUS VAULTS FOR ZIPPED METAL ROOFS



Measured according to each project



Termoplan® continuous vaults offer a natural diffusion of daylight, allowing light to spread more evenly throughout the environment. Due to its versatility, it could be used in zipped metal roofs, including air-conditioned environments, which are temperature sensitive, such as home centers, industrial areas, sports and logistics centers.

They allow for the best use of natural lighting, replacing or complementing electrical lighting systems, while greatly reducing external heat, resulting in energy savings and thermal comfort.

### TERMOPLAN® BENEFITS



#### TEMPERATURE CONTROL

Thanks to the thermal insulation capacity provided through the air pocket, it allows for internal environment temperature control.



#### LIGHTING RETENTION

Low lighting retention, which allows for an excellent passage of white sunlight.



#### ENERGY EFFICIENCY

By using sunlight in an environment, it is possible to considerably reduce energy consumption and costs.



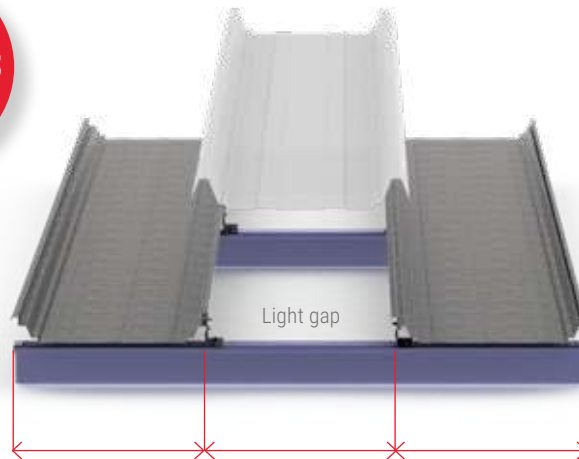
#### CONDENSATION REDUCTION

Due to the low thermal conductivity of the air, it reduces condensation inside the environment.



# STANDARD ZIP

## STANDARD TRANSLUCENT PANEL FOR ZIPPED METAL



Measured according to each project

Designed to fit any model of zipped metal panels, its gap fits the space of a metal panel and its edges must overlap it.

The stitch screw is fixed directly to the crest of the zipped panel or fastening clip.

This format allows for a greater resistance against the winds.

Planefibra panels are the only ones in the market with UV protection polyester film on both sides, as a standard finishing for all models, at no additional cost.

**PANEL WITH NO PROTECTION FILM  
COMMON PANEL ON THE MARKET**



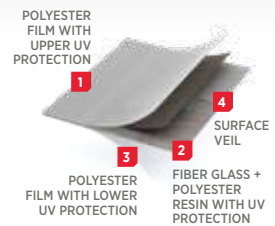
**PANEL WITH TOP GRADE 2 PROTECTION FILM**



**PANEL WITH GRADE 1 PROTECTION FILMS**

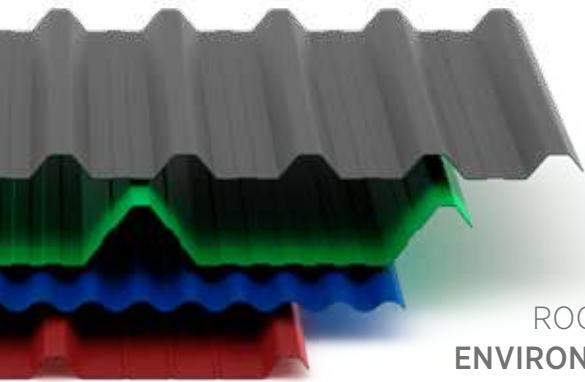


**PANEL WITH POLYESTER VEIL AND PLANEFIBRA GRADE 1 UV PROTECTION FILMS (PLUS)**



Planefibra also offers **safe and efficient solutions with high resistance to the spreading of flames**, in case of a fire.

These are products that fulfill the demands of the construction market, considering the risk of fire in commercial, industrial and public buildings according to IT 10 (CLASS II-A).



PLANEFIBRA  
**CORROSION  
RESISTANCE**

ROOFS DESIGNED FOR **AGGRESSIVE ENVIRONMENTS OR PLACES WITH CORROSIVE PRODUCTS** REQUIRE PLANEFIBRA'S OPAQUE PANELS.

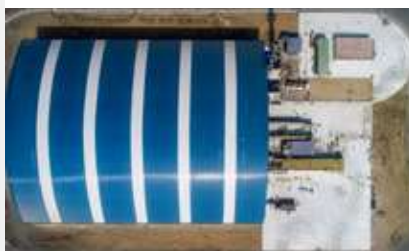
It is not a secret that corrosion is harmful for industrial environments, but when we talk about corrosion resistant solutions for roofing and siding, **PlaneFibra opaque panels** are ideal for industrial and commercial projects, such as warehouses, agribusiness and coastal installations, like maritime facilities, fishing docks, and port facilities.

**SEGMENTS SUPPORTED**

**AGRIBUSINESS**



**INDUSTRIAL AREAS**



**PORT AREAS**



**COMPARATIVE TABLE FOR OPAQUE PANELS AND OTHER PRODUCTS IN THE MARKET**

	FRP			GALVANIZED STEEL			FIBER-CEMENT	
	1.50 mm	2.00 mm	2.50 mm	0.43 mm	0.50 mm	0.65 mm	5.00 mm	6.00 mm
Thickness	1.50 mm	2.00 mm	2.50 mm	0.43 mm	0.50 mm	0.65 mm	5.00 mm	6.00 mm
Weight kg/m <sup>2</sup>	2.59	3.45	4.31	3.90	4.50	5.90	16.00	18.00
Chemical Resistance	Resistant to neutral and alkaline chemical agents				X		Resistant to neutral and alkaline chemical agents	
Corrosion Resistance	Immune to oxidation and corrosion				X		Immune to oxidation and corrosion	
Water absorption	0 to 1%				Zero		25 to 30%	
Water absorption expansion	Zero				Zero		± 3.00 mm/m	

Weight: for FRP and galvanized steel, the 40/980 trapezoid panel was used. For Fiber-cement, the 6 mm waved panel was used as a reference.



PlaneFibra also offers safe and **efficient solutions with high resistance to the spreading of flames**, according to IT 10 (CLASS II-A) or in accordance with UL 94 | "Tests for Flammability of Plastic Materials for Parts in Devices and Applications". V-0 rating.



## FRP PRODUCTS EVOLUTION

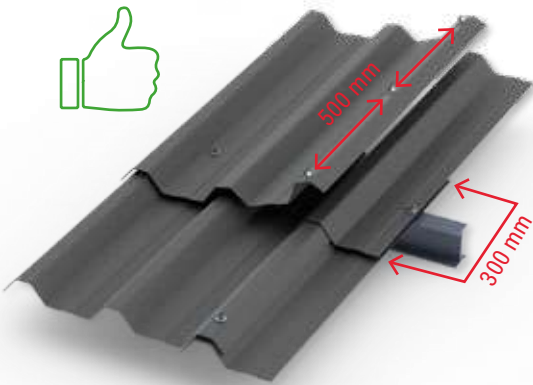
Plane fibra is always on top of the **market needs and demands**. That's how we became a reference when it comes to **FRP (Fiberglass-reinforced polyester)**. We guarantee the **durability and quality** of the products developed with this material.

**Plane fibra opaque panels are an excellent corrosion resistant option to replace traditional roofs that use metal panels, Aluzinc, aluminum, fiber-cement and others.**



## BENEFITS OF PLANEFIBRA OPAQUE PANELS

- ✓ Excellent internal temperature control;
- ✓ Easy to clean;
- ✓ High chemical resistance;
- ✓ Made to order;
- ✓ Manufactured on the right color for your project, since pigmentation is done at the manufacturing process.



Avoid cuts where the panels overlap, as occurs with fiber-cement panels.

### PHYSICAL/MECHANICAL PROPERTIES

PROPERTIES	TEST METHOD	MEASUREMENT UNIT	SPECIFICATION
Fiberglass content	NBR 13.275	% of mass	24 % (minimum)
Stretch	ASTM D 638	%	1 to 2
Tension resistance	ASTM D 638	Mpa	100 to 120
Tensile elastic modulus	ASTM D 638	Mpa	5,500 (minimum)
Bending resistance	ASTM D 790	Mpa	130 (minimum)
Bending elastic modulus	ASTM D 790	Mpa	5,000 (minimum)
Water absorption	ASTM D 570	% of mass	1 (maximum)
Barcol hardness	ASTM D 2583	0 to 100	40 to 50

### THERMAL PROPERTIES

PROPERTIES	TEST METHOD	MEASUREMENT UNIT	SPECIFICATION
Light Transmission	ASTM E903	% of mass	0.00
Thermal transmittance (U coefficient)	NBR 15.220	W/m <sup>2</sup> .K	4.47
Thermal Resistance (R coefficient)	NBR 15.220	m <sup>2</sup> .K/W	0.01
Thermal capacity (TC)	NBR 15.220	Kj/(M <sup>2</sup> .K)	3.31
Thermal conductivity (k)	NBR 15.220	W/m.K	0.17

Tests performed by LABEEE (Building Energy Efficiency Lab) of UFSC.



PLANEFIBRA  
**CORROSION  
RESISTANCE**

THE SOLUTION YOU WERE  
NOT EVEN LOOKING FOR.

If what you are looking for is a perfectly seamless and corrosion resistant finishing for your roof, in the right color for your project, look no further. **PlaneFibra panels are the right combination for the inferior panel or tray (ceiling) that you need.**

They can be used as rooftop in the **composition of thermoacoustic panels**, and applied to more aggressive environments and places with corrosive products, as well as air-conditioned environments, creating an excellent finishing. They are efficient, for example, for industrial areas, supermarkets, shopping malls, educational and recreational facilities, just to mention a few.

**BENEFITS OF PLANEFIBRA FRP PANELS**

- ✓ Excellent internal temperature control;
- ✓ Easy to clean;
- ✓ High chemical resistance;
- ✓ Made to order;
- ✓ Manufactured on the right color for your project, since pigmentation is done at the manufacturing process.

**COMPARATIVE TABLE**

	PRFV		GALVANIZED STEEL		
	0.80 mm	1.00 mm	0.43 mm	0.50 mm	0.65 mm
Thickness	0.80 mm	1.00 mm	0.43 mm	0.50 mm	0.65 mm
Weight kg/m <sup>2</sup>	1.38	1.725	3.90	4.50	5.90
Chemical resistance	Resistant to neutral and alkaline chemical agents			X	
Corrosion resistance	Immune to corrosion and oxidation			X	

Weight: for FRP and galvanized steel, the 40/980 trapezoid panel was used.



PlaneFibra also offers safe and **efficient solutions with high resistance to the spreading of flames**, according to IT 10 (CLASS II-A) or in accordance with UL 94 | "Tests for Flammability of Plastic Materials for Parts in Devices and Applications". V-0 rating.



## FRP PRODUCTS EVOLUTION

Planefibra is always on top of the **market needs and demands**.  
That's how we became a reference when it comes to **FRP (Fiberglass-reinforced polyester)**.  
We guarantee the **durability and quality** of the products developed with this material.



## ONE PRODUCT, MULTIPLE ADVANTAGES:

### LOWER PANEL | TRAY

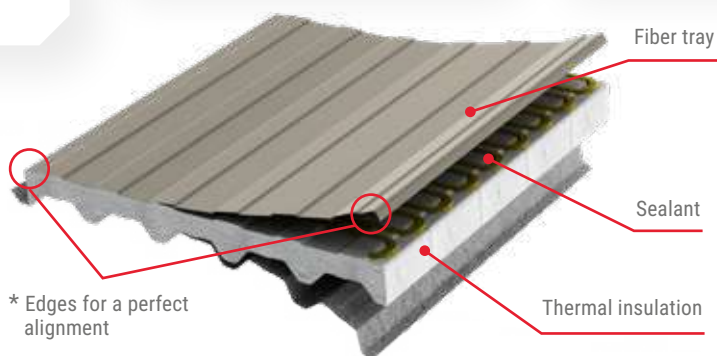
- ✓ Competitive price
- ✓ Corrosion resistant
- ✓ Reduced assembling time
- ✓ Less weight
- ✓ Less maintenance
- ✓ Flame resistant
- ✓ Noise reduction (EPS)

### ADVANTAGES FOR THE ROOF SEALING WORKER

- ✓ Easy to seal
- ✓ It does not dent/deform
- ✓ More productivity
- ✓ Transport
- ✓ Squaring/alignment\*

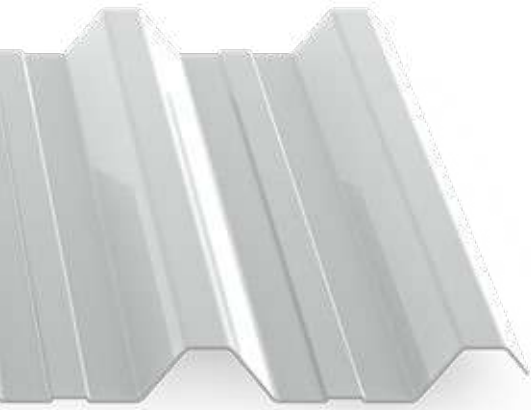
### ADVANTAGES FOR THE ROOF ASSEMBLING WORKER

- ✓ It does not dent during the assembling process
- ✓ Greater watertightness
- ✓ Less weight
- ✓ Easy to transport/handle



## PHYSICAL/MECHANICAL PROPERTIES

PROPERTIES	TESTING METHOD	MEASUREMENT UNIT	SPECIFICATION
Fiberglass content	NBR 13.275	% of mass	24 % (minimum)
Stretch	ASTM D 638	%	1 to 2
Tension resistance	ASTM D 638	Mpa	100 to 120
Tensile elastic modulus	ASTM D 638	Mpa	5,500 (minimum)
Bending resistance	ASTM D 790	Mpa	130 (minimum)
Bending elastic modulus	ASTM D 790	Mpa	5,000 (minimum)
Water absorption	ASTM D 570	% of mass	1 (maximum)
Barcol hardness	ASTM D 2583	0 to 100	40 to 50



## FLAME RESISTANT

PLANEFIBRA

### CONSTRUCTION PROJECTS SHOULD INCLUDE **FLAME RESISTANT** ROOFING SYSTEMS

Planefibra offers **safe and efficient solutions with high resistance to the spreading of flames**, in case of a fire. These are products that fulfill the demands of the construction market, considering the risk of fire in commercial, industrial and public buildings.

Together with preventive maintenance, it is essential that the construction or remodeling project include materials that will be resistant to the spreading of flames. Planefibra offers **solutions that fulfill the safety codes**, with products that **won't cause a visual barrier** which would make it difficult for occupants to escape in case of a fire.



- ✓ Translucent Panels
- ✓ Continuous Vaults
- ✓ Fins for Industrial Shutters



- ✓ Opaque panels
- ✓ FRV panel/tray for thermoacoustic panels



Our products are lab tested according to **NBR 9442, ASTM E662 and IT 10/2011 (Class II-A) codes** or in accordance with UL 94 | "Tests for Flammability of Plastic Materials for Parts in Devices and Applications". V-0 rating.



**FLAME  
RESISTANT**  
PLANEFIBRA

## SAFETY AND PROTECTION FOR YOUR COMPANY



### FLAME RESISTANT PRODUCTS - #RC

Purpose: to comply with the codes that establish conditions to avoid the spreading of flames where the fire initially started and that won't cause a visual barrier which would make it difficult for occupants to escape in case of a fire.

### CODES AND SPECIFICATIONS/ TESTS

LABEL	CODE	PURPOSE	PLANEFIBRA RC	LABEL	CODE	PURPOSE	PLANEFIBRA RC
			RESULT				RESULT
Determine the testing procedures	ASTM D635	Sets the fire rate (mm/min)	< 25 mm/min	Classifies the product based on the testing results	ASTM D635	Classifies the product based on fire rate	CC1
	NBR 9442	Sets the flame spread index (Ip)	< 25		IT 10	Classifies the product based on fire resistance and smoke emission	Class II-A
	ASTM E662	Sets the maximum optical smoke density (Dm)	< 450				
	ISO 1182	Determines whether the material is combustible or non-combustible	Combustible				
	UL 94	Sets the resistance rate (mm/mim)	20 seconds				
				UL 94	Classifies the product based on fire resistance	V-0	

LABEL	CODE	PURPOSE	PLANEFIBRA RC
			RESULT
	IT 10	Roof and ceiling use (finishing/ coating), it must comply with: Class I, II-A or III-A	Complies
Specifies the type of product for each use in construction	NBR 15.575	For the internal surface of the roofing system, it must comply with: Class I, II-A or III-A	Complies
	NBR 15.575	For the external surface of the roofing system, it must comply with: Class I, II or III	Complies

Ip – Flame superficial spread index.

Dm – Smoke maximum optical specific density.



# PANELS FOR PERGOLAS, WALKWAYS AND OTHER EXTERNAL AREAS

PRACTICAL INSTALLATION, EASY MAINTANANCE

Planefibra panels for pergolas, walkways and other external areas are practical to install, easy to clean, and long-lasting.

## BEST COST BENEFIT IN THE MARKET!

- ✓ Practical installation
- ✓ Easy to clean
- ✓ Low maintenance
- ✓ Mold resistant material
- ✓ Better mechanical resistance
- ✓ Lower infiltration index
- ✓ Guaranteed natural lighting

We offer 1.2 mm thick panels for pergola, with a standard length of 4.1 / 5.1 / 6.1 meters.  
**Consult us and avoid wasting material!**

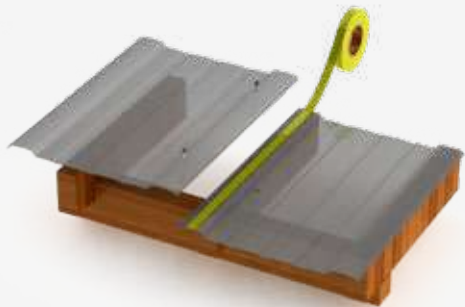




**ASSEMBLE - DO IT YOURSELF!**



1 – Measure the rafter



2 – Place the panels and fix them



Drip flashing



Finishing flashing

3 – Attention to the finishings



# VENTILATION SYSTEM / INDUSTRIAL SHUTTERS

## PLANEFIBRA, **FAST AND PRACTICAL ASSEMBLING**

Environments with unique structures also require special materials and finishes, which can best fit the project's architecture.

Our shutters **can be developed according to your project needs**, allowing you to have **exclusive products adapted to your design**, making it even more sustainable.

Shutters and natural ventilation systems **provide good air circulation and allow sunlight** to penetrate, being a smart way to use renewable natural resources: sunlight and air. Your environment becomes more pleasant and healthy, and **energy consumption is reduced**, generating savings and **investment return in a few months**.



## **SUPERIOR QUALITY**

Each Planefibra product goes through **strict quality control tests**, which guarantees more **precision in the material's composition, temperature control, and uniform distribution of thickness throughout the whole panel**.

Materials may be selected by the client according to preference. This way they can be better suited for your design and also for the weather in the area where they will be installed.

## FEATURES

- ✓ **Naturally lit and ventilated environments.**
- ✓ **Easy to install and maintain.**
- ✓ **Allows for a healthier and more pleasant environment**, due to a **better wind flow**.
- ✓ **Conscious use of natural and renewable resources**, avoiding impacts on the environment.
- ✓ **Short term investment return**, due to the considerable energy savings.
- ✓ Products that fulfill the required specifications, **maintaining the building aesthetics** and allowing more **sustainability to your project**.
- ✓ **Well suited for different environments**, such as sports centers, industrial and logistical warehouses.
- ✓ Besides offering excellent finishing, through different materials, it **maintains your environment safe and protected**.
- ✓ Products **manufactured for the size of your project**, avoiding wastes and leftovers.

THEY ARE DELIVERED IN MOUNTED FRAMES, WHICH MAKES ASSEMBLING QUICK AND EASY. OUR SHUTTERS ARE SAFE AGAINST INFILTRATIONS, AND COULD BE USED IN DIFFERENT TYPES OF CONSTRUCTION.

## INSTALLATION

## MANY OPTIONS

### STRUCTURE

Galvanized steel / Aluminum / Steel.

### FINS

They can be manufactured in fiberglass-reinforced polyester (FRP), which is the best option, since it is a thermoset engineering material. They could also be provided in PVC, galvanized steel, and aluminum, with the colors the client chooses.

### FINISHINGS

Natural, pre-painted or post-painted.

WE MANUFACTURE SHUTTERS WITH MATERIALS WITH UNIQUE COLORS AND COMPOSITIONS, TO GUARANTEE THE IDEAL PRODUCT FOR YOUR STRUCTURE.





# FLAT SHEETS OF FIBERGLASS-REINFORCED POLYESTER TO MAKE ROAD SIGNS

## THE BEST OPTION IN ROAD SIGN MAKING

For more than 15 years, Planefibra has stood out as a reference in **highly resistant and durable products**.  
Our materials are an excellent option for road sign manufacturing, which meets the strictest specifications and deliver **the best cost-benefit!**



## COMPLIANCE WITH NBR 13.275:2013 CODE

Planefibra's FRP sheets fully comply with the requirements of **ABNT NBR 13.275 code**, which sets out the codes to manufacture boards used to make **road signs**.

They are manufactured according to all the requirements established, such as:

PROPERTIES	SPECIFICATION
Fiberglass content	25% minimum
Board thickness	2.00 mm minimum
Specific mass	1.35 g/cm <sup>3</sup> minimum
Stretch at breakpoint	1.20 % minimum
Tension resistance	85 MPa minimum
Tensile elasticity module	5,000 MPa minimum
Bending resistance	130 MPa minimum
Bending elasticity module	5,000 MPa minimum
Water absorption	1% maximum
Residual styrene	2% maximum



### HIGHLY RESISTANT

Our FRP sheets are UV protected and do not contain any type of metal in their composition, **they don't get rusty nor wear out over time.**



### QUICK INSTALLATION

As **they weigh significantly less** than other materials used in the manufacturing of road signs, FRP sheets **reduce transportation and installation** labor costs, while reducing installation time.



### AVOID THEFT

FRP sheets weighs less, so the support structure doesn't need to be as sturdy, which **consequently reduces costs.**



### PROFITABILITY

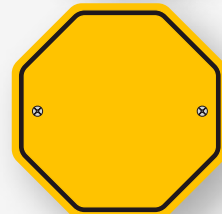
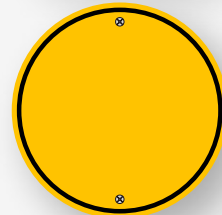
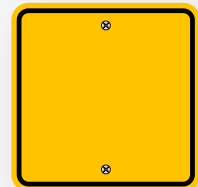
FRP sheets weighs less, so the support structure doesn't need to be as sturdy, **which consequently reduces costs.**



### ALLOWS STICKERS

Planefibra's FRP sheets are **manufactured in black\***, the right color to meet the standards required by the codes, therefore not requiring a subsequent painting process.

Our sheets may already **come in the format and dimensions established in the contract** straight from the factory, requiring only the last part of the project: attaching the stickers.



### \*OTHER COLORS

We can meet your needs and manufacture the sheet with one side in a specific color. All we need is to know the color in advance, so that we can prepare the pigment for the gelcoat (finishing layer).

# PERSONALIZED SERVICE

## **Above all, we are experts in this business.**

After all, it is your project's roof that we are talking about.

Focused on the construction and industry sectors, through the vast experience acquired over the years and a team of specialized professionals, Planefibra always **develops its products to meet a demanding market in the roofing segment.**

**We specialize in roofing products made of fiberglass-reinforced polyester, FRP**, and it is our commitment to excel in panel manufacturing and in all the services we offer.

**Our engineering and project departments offer technical support to our clients, so they could choose the best roofing or ventilation system alternatives for their projects.**

## **OUR WORK METHOD**

- ✓ Engineering department assistance as needed.
- ✓ After the digital projects are available, analyze them to determine the needs and application of products.
- ✓ Calculate the total cost of Planefibra products that will be used in the project.
- ✓ Prepare a lighting design and its consequent versatility (investment return, suitable products, exclusive solutions).
- ✓ Identify the right product for the roofing or ventilation system.
- ✓ Provide technical information on storage and material handling.
- ✓ Product certification and/or compliance with the applicable codes.
- ✓ Specified product assembling project in exclusive projects.



## PLANEFIBRA, YOU CAN COUNT ON US!

- ✓ Production line with efficient methods and trained and experienced professionals.
- ✓ Special service and guaranteed scheduled delivery.
- ✓ High-quality material, focusing on more resistant and long-lasting products.
- ✓ Full compliance with the NBR 16753 code.  
Our panels are the only ones on the market that have a polyester film with UV protection on both sides as a standard finish.
- ✓ Projects that seek a short-term return on your investment – Termoplan® Continuous Vaults.
- ✓ Natural lighting solutions for zipped metal roofs.
- ✓ Roofs designed for aggressive environments or places with corrosive products.
- ✓ Flame resistant products, tested in accordance with NBR 9442, ASTM E662 and IT 10/2011 - Class II-A | UL 94/97
- ✓ Ventilation systems / Industrial shutters.
- ✓ Your best option for road sign making, meeting the NBR 13.275:2013 code.
- ✓ Products offered in traditional colors, natural transparent and opaque white, as well as color pigmentation options, with the possibility of creating different shades to suit specific projects.
- ✓ We manufacture practically all models of panels in the market, whether you are replacing old roofs or making new building projects.

 **PLANEFIBRA®**

# #PLANEFIBRA®

## OUR PRODUCTS



TRANSLUCENT ROOFING PANELS



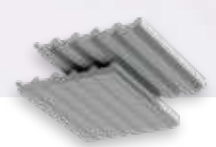
TERMOPLAN® CONTINUOUS VAULT



TRANSLUCENT PANELS FOR ZIPPED METAL ROOFING



CORROSION RESISTANT ROOFING PANELS



FRP PANEL/TRAY TO COMPOSE THERMOACOUSTIC PANELS



#RC FIRE RESISTANT



PANELS FOR PERGOLAS




VENTILATION SYSTEM / INDUSTRIAL SHUTTERS



VERTICAL ROAD SIGNS



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