



ECOfibra

PRODUCT CATALOG  
LIGHTING





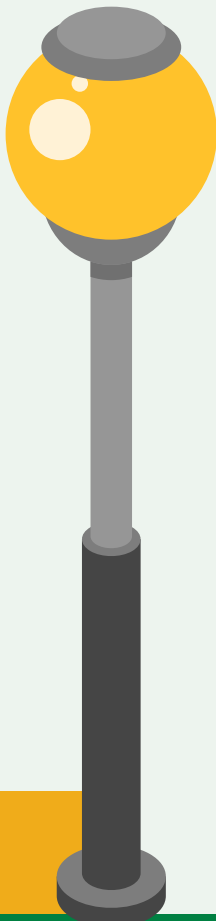
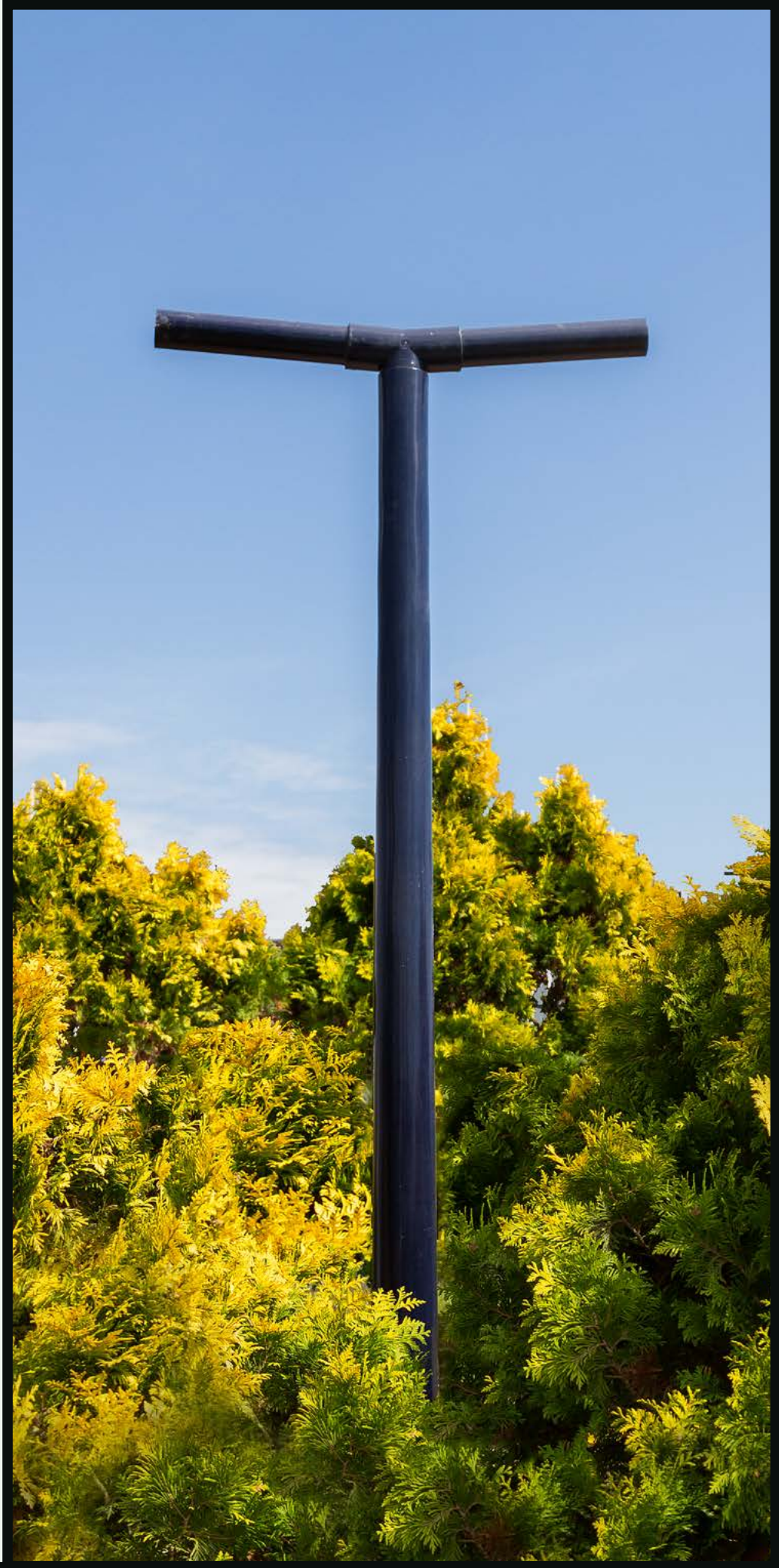
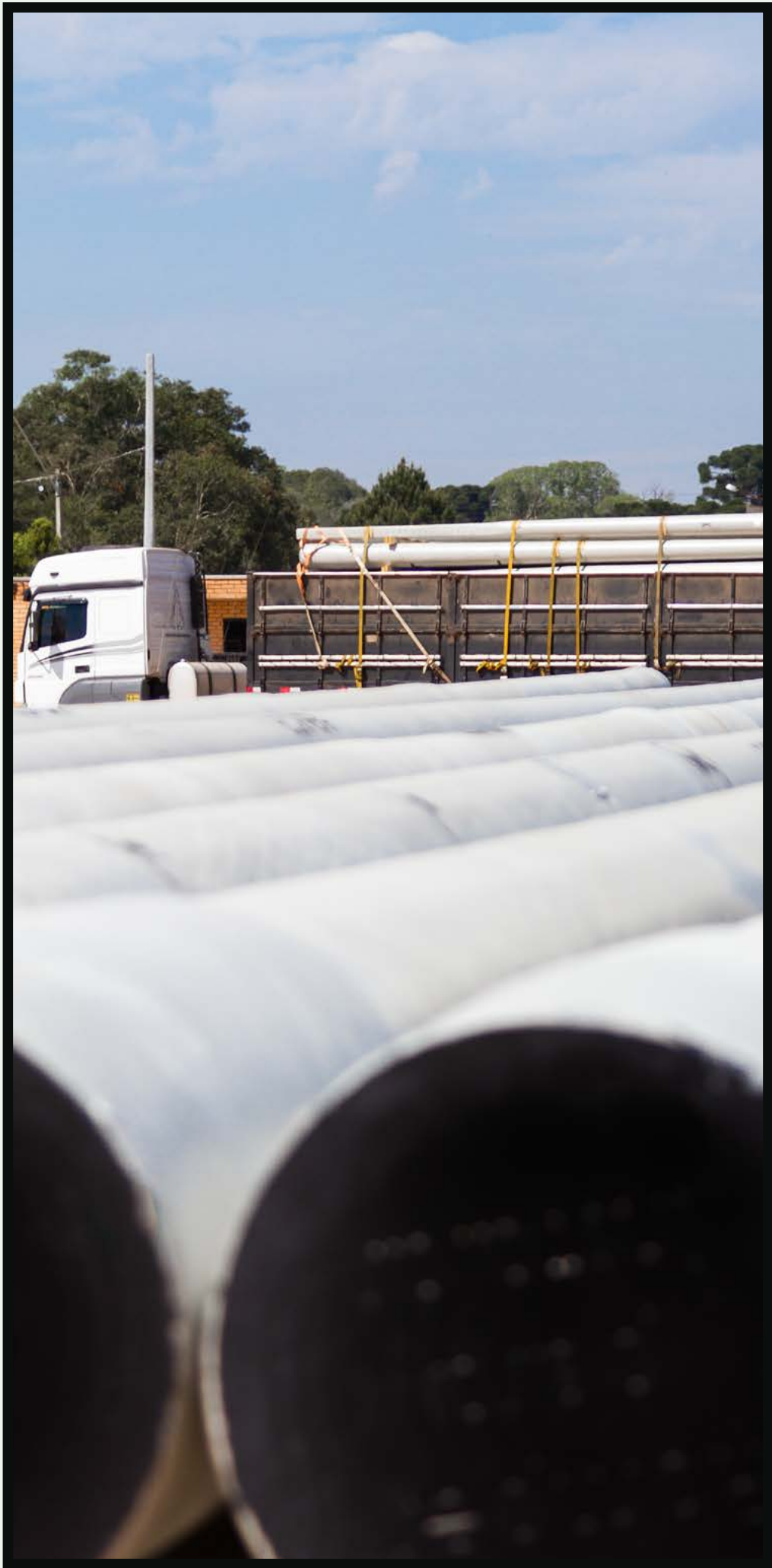
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LIGHTING



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## ECOFIBRA: Shaping the future with composite materials since 2009.

Ecofibra emerged to meet the demand for FRP (Fiberglass Reinforced Polyester) poles for the electrical and telecommunications sectors. We quickly gained leadership in the market and expanded our operations to also serve the lighting sector. We pride ourselves on producing environmentally friendly products with low atmospheric CO<sub>2</sub> emissions. Our solutions have been crucial in construction works throughout Brazil, driven by our innovative technology in composites.

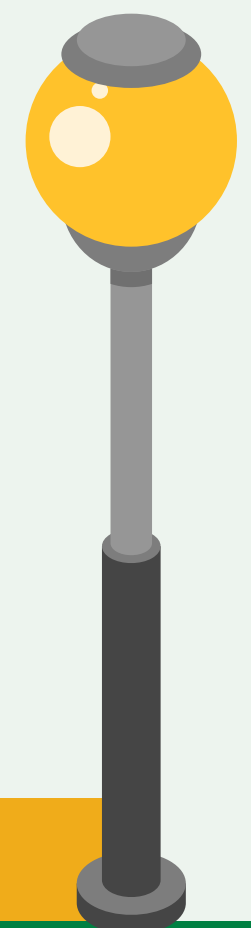
Light poles play a vital role in ensuring the safety and aesthetics of our streets, roads, parks and squares. At Ecofibra, we offer high-quality, durable and efficient light poles that can withstand even the harshest weather conditions while delivering top-notch performance. We are committed to providing our customers with sustainable and reliable solutions that meet their specific needs, offering a wide range of options and custom designs.

Choosing the right material for light poles is crucial. Non-conductive materials such as fiberglass are ideal for light poles as they are lightweight and non-conductive, making them safe for use in areas with high-voltage power lines. Fiberglass poles are highly resistant against corrosion and can withstand harsh weather conditions, making them the perfect choice for outdoor lighting applications.

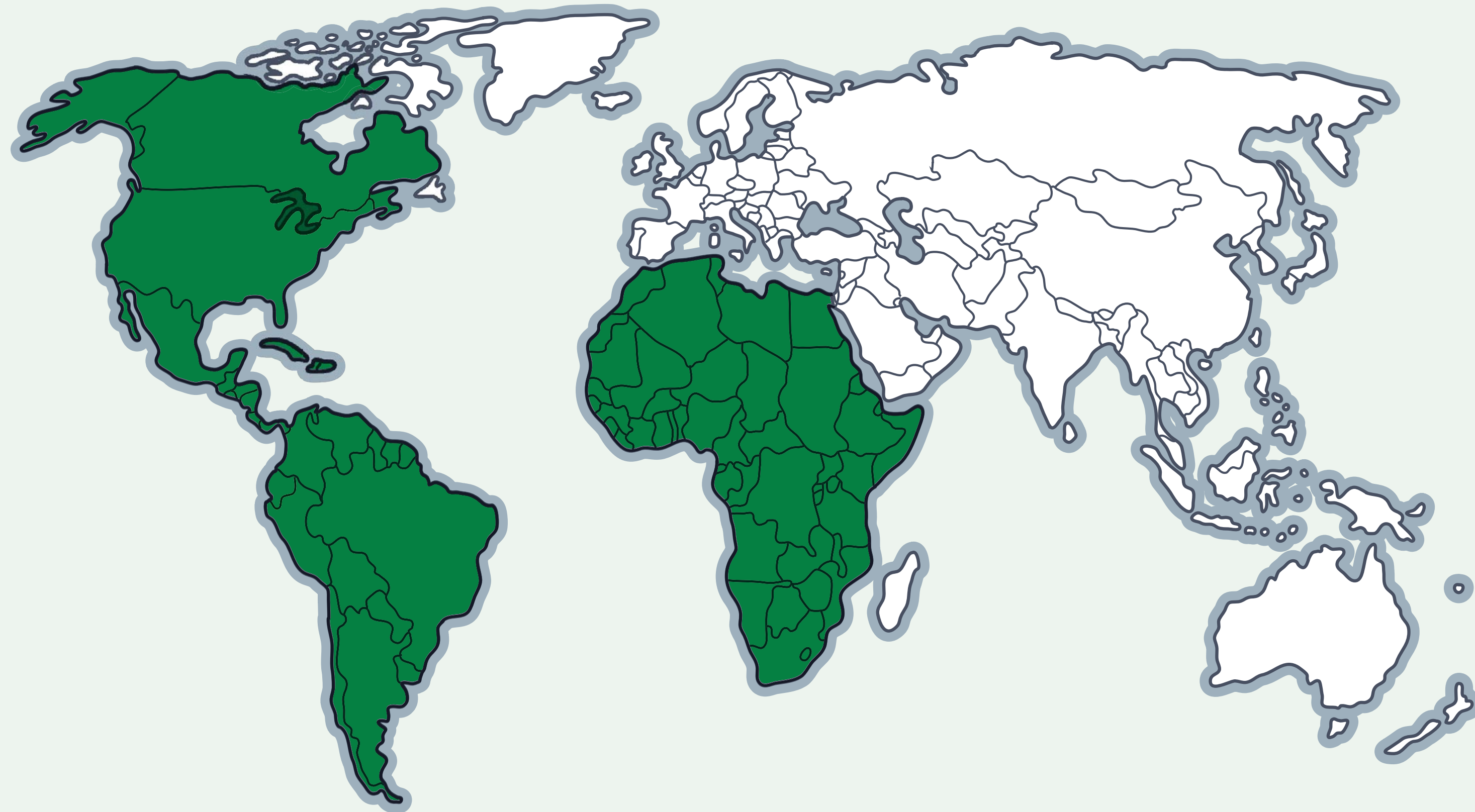
In addition, lightweight poles are easier to install and require less equipment and labor, which makes them economical and efficient in providing lighting for public spaces. At Ecofibra, we prioritize sustainability and use environmentally friendly materials and processes in all our operations, ensuring consistent quality and reliability.

Our team of specialists is always ready to provide assistance and support to ensure our products are installed safely and efficiently. We use state-of-the-art technology and fully automated processes in our industrial park located in the metropolitan region of Curitiba, ensuring innovation and excellence in our products and services.

Join us to experience the vision, boldness, and entrepreneurship behind our brand and discover the difference our solutions can make for your business.

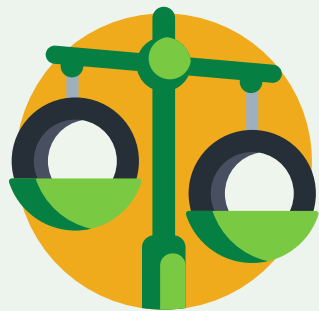


## GEOGRAPHICAL SCOPE



# CHARACTERISTICS OF FRP

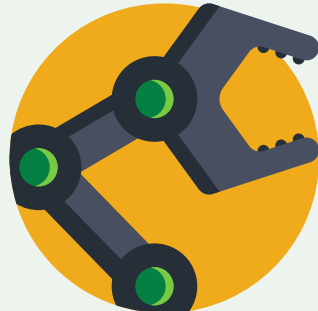
FRP (Fiberglass Reinforced Polyester) products manufactured by Ecofibra are lightweight solutions with high mechanical properties, perfect for applications that require swiftness and little maintenance.



LIGHTWEIGHT



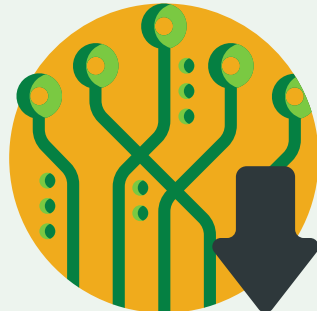
EASY TO  
TRANSPORT



EASY TO  
INSTALL



IMMUNE TO  
CORROSION



LOW ELECTRICAL  
CONDUCTIVITY



EXTENDED  
SERVICE LIFE



EASY TO  
MAINTAIN



SELF-EXTINGUISHING



ECO-FRIENDLY  
PRODUCT\*



UNIQUE SURFACE  
FINISH



LOW OVERALL COSTS

\* (CONTAINS RECYCLED PET IN ITS COMPOSITION – LOW CO<sub>2</sub> ATMOSPHERIC EMISSIONS)

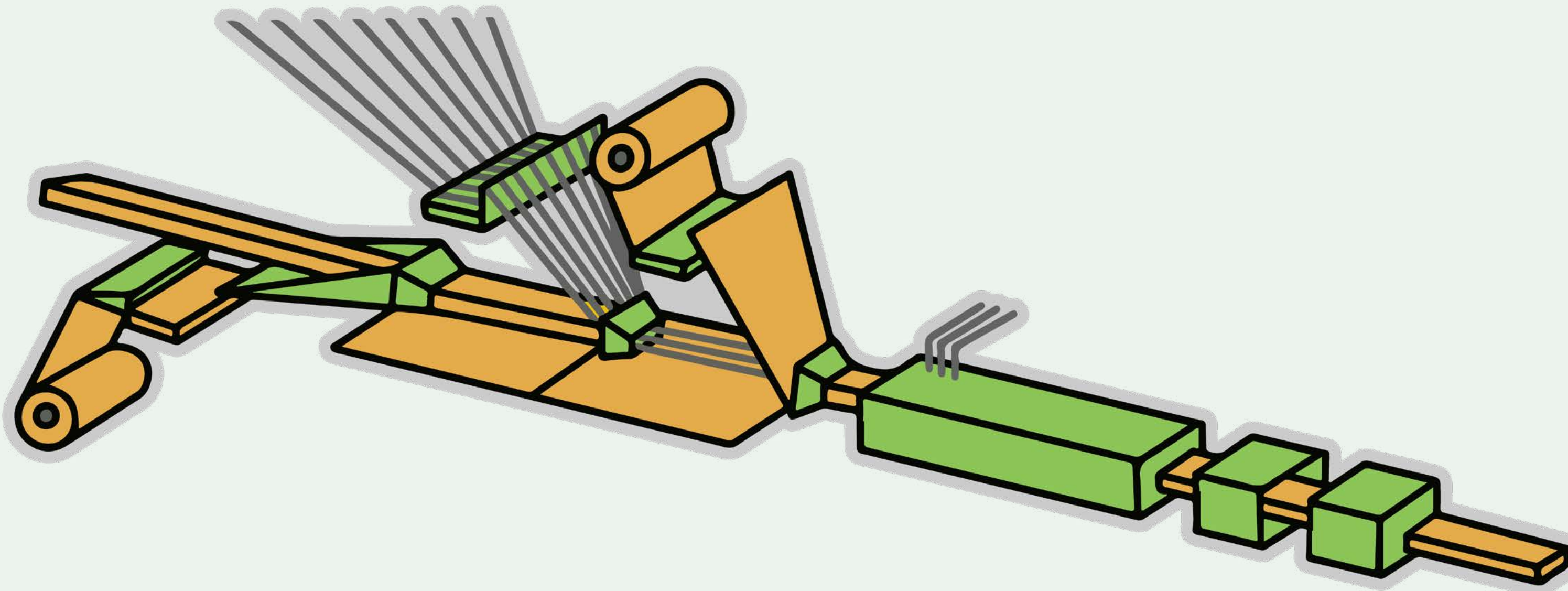


ADVANTAGES OF FRP

	WEIGHT	TRANSPORTATION	UNLOADING	INSTALLATION	CORROSION	ELECTRIC SHOCK HAZARD	SERVICE LIFE	MAINTENANCE
FRP	 2 lb	 TOTAL TRUCK OCCUPANCY	 FORKLIFT / HAND TRUCK	 3-4 people	 NULL	 NULL	 50+ YEARS	
STEEL	 6 lb	 WEIGHT LIMITATION	 MUNCK TRUCK	 6-8 people	 HIGH	 HIGH	 10to20 YEARS	
CONCRETE	 20 lb	 WEIGHT LIMITATION	 MUNCK TRUCK	 8 - 10 people	 MEDIUM	 MEDIUM	 10to30 YEARS	

## PULTRUSION PROCESS

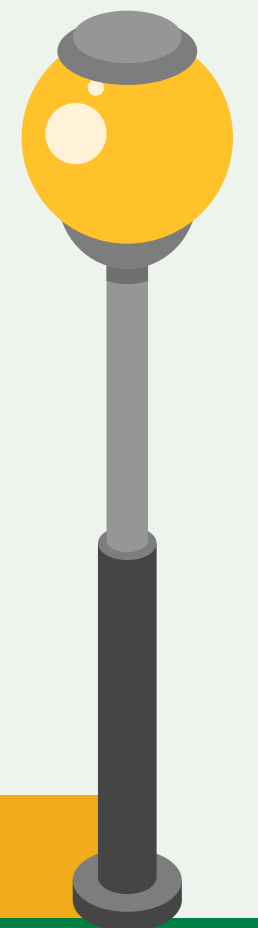
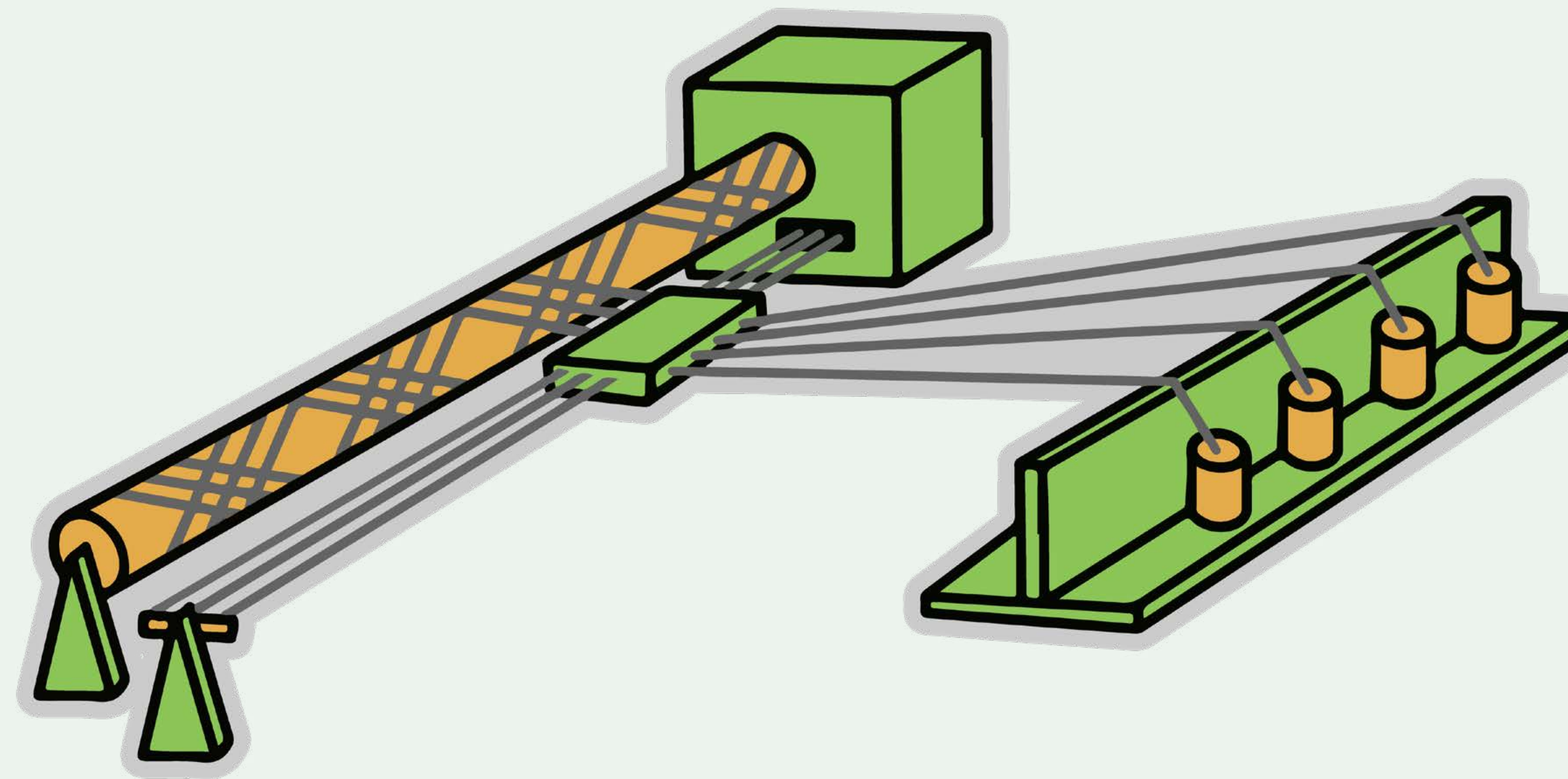
The pultrusion process is a highly effective manufacturing technique consisting of impregnating fiberglass with resin. Subsequently, this combination is pulled through a heated mold, resulting in a robust, long-lasting and lightweight profile. This composite material has high strength and durability when compared to conventional materials such as steel and concrete, but with a remarkable advantage in terms of lightness. We offer profiles that can be adapted in various shapes, dimensions and colors, making them perfect for a wide range of applications in various industries.





## FILAMENT WINDING PROCESS

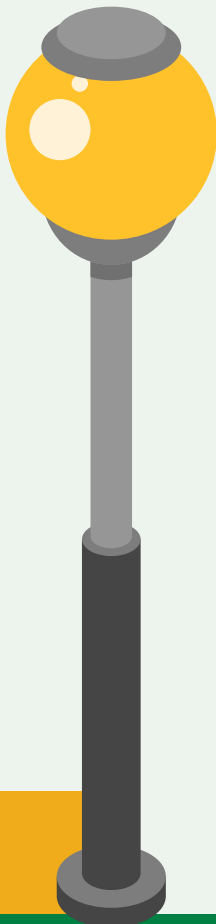
Filament winding is a highly effective technique used to produce FRP (Fiberglass Reinforced Polyester) items. This method consists of winding glass fibers, previously impregnated with polyester resin, on a rotating mandrel. It is especially efficient for creating hollow parts such as pipes or poles. The resulting products have an excellent strength to weight ratio, providing notable advantages with regard to transportation, assembly, and installation.





CERTIFIED TESTS

APPLICATION	TEST	REGULATORY STANDARD	REFERENCE RESULT
POLES AND CROSSARMS	ELASTICITY AND RUPTURE	ABNT NBR 16989 ABNT NBR 16946	ACCORDING TO THE DESIGN
POLES AND CROSSARMS	TORSIONAL RESISTANCE	ABNT NBR 16989 ABNT NBR 16946	NO RUPTURE AFTER APPLICATION OF 1.4 X RATED LOAD
POLES	BENDING MOMENT	ABNT NBR 16989	ACCORDING TO THE DESIGN
POLES	BENDING FATIGUE	ASTMD 4923	NO LOSS OF MECHANICAL PROPERTIES AFTER 1,000,000 CYCLES
CROSSARMS	LONG-TERM MECHANICAL TEST	ABNT NBR 16946	≥ 160 DAN
CROSSARMS	ENSAIO MECÂNICO DE LONGA DURAÇÃO	ABNT NBR 16946	ACCORDING TO DESIGN AFTER 216 HRS
POLES AND CROSSARMS	TORQUE RESISTANCE	ABNT NBR 16989	≥ 8 DAN.M
POLES AND CROSSARMS	BARCOL HARDNESS	ASTM D 2583	≥ 30 BARCOL
POLES AND CROSSARMS	WATER ABSORPTION	ABNT NBR 5310 ASTM D 570	≤ 3%
POLES AND CROSSARMS	ELECTRICAL TRACKING RESISTANCE	ABNT NBR 10296	2A 1,75 KV
POLES AND CROSSARMS	DIELECTRIC STRENGTH	ASTM D 149	≥ 10 KV/MM
POLES AND CROSSARMS	FLAMMABILITY	UL 94	CATEGORY V-0
POLES AND CROSSARMS	FLAME PROPAGATION	ABNT NBR 16989 ABNT NBR 16946	FLAME EXTINCTION WITHIN 30 SECONDS
POLES AND CROSSARMS	ACCELERATED AGING	ASTM G 154	VARIATION OF MECHANICAL PROPERTIES < 25% AFTER 5,000 HRS OF AGING
CROSSARMS	INDUSTRIAL FREQUENCY TO WITHSTAND VOLTAGE IN THE RAIN	ABNT NBR 16946	NO DISRUPTIVE DISCHARGES





**ECO***fibra*

PRODUCTS



## CONICAL POLES FOR PUBLIC, PRIVATE AND ROAD LIGHTING - DIRECT EMBEDDED:

- EMBEDDED DIRECTLY INTO THE SOIL, ACCORDING TO THE NEEDS AND THE APPLICABILITY OF EACH DESIGN
- MANUFACTURED USING THE FILAMENT WINDING PROCESS
- CONICAL SECTION
- SECTIONED IN UP TO 3 PARTS
- SMOOTH FINISH WITH PU PAINT ACCORDING TO

- THE REQUESTED COLOR (SEE PAGE 17)
- U.V. BLOCKER
  - SERVICE LIFE UP TO 50 YEARS WITHOUT MAINTENANCE
  - ADAPTABLE TO FIT TIPS AND CORES FOR LIGHTING ARMS AND FIXTURES
  - SPECIAL DESIGNS
  - FROM 6 TO 65 FT (2 TO 20 M) HIGH, greater heights upon request.

### APPLICATIONS:



CONDOMINIUMS



PARKS



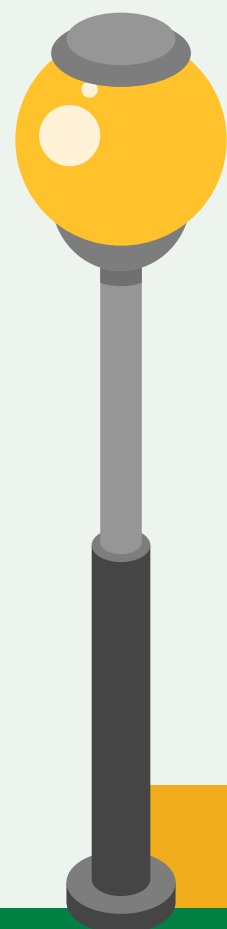
PARKING LOTS



PUBLIC STREETS



HIGHWAYS





## CONICAL POLES FOR PUBLIC, PRIVATE AND ROAD LIGHTING - ANCHOR-BASED:

- FLANGE FIXING WITH ANCHOR BOLTS, ALLOWS APPLICATION WHERE EMBEDMENT IS NOT POSSIBLE
- MANUFACTURED USING THE FILAMENT WINDING PROCESS
- CONICAL SECTION
- SECTIONED IN UP TO 3 PARTS
- SMOOTH FINISH WITH PU PAINT ACCORDING TO THE REQUESTED COLOR (SEE PAGE 17)
- U.V. BLOCKER
- SERVICE LIFE UP TO 50 YEARS WITHOUT MAINTENANCE
- ADAPTABLE TO FIT TIPS AND CORES FOR LIGHTING ARMS AND FIXTURES
- SPECIAL DESIGNS
- FROM 6 TO 65 FT (2 TO 20 M) HIGH, greater heights upon request..

### APPLICATIONS:



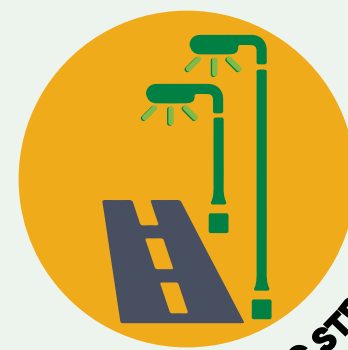
CONDOMINIUMS



PARKS



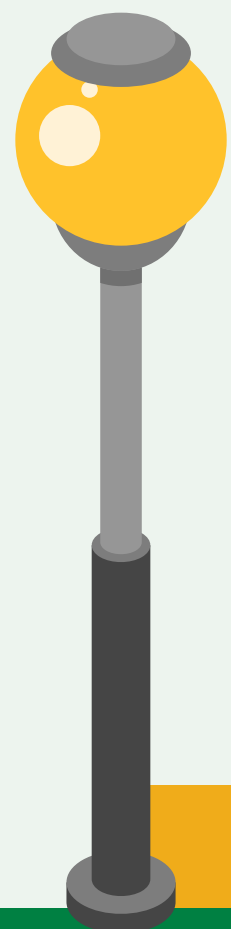
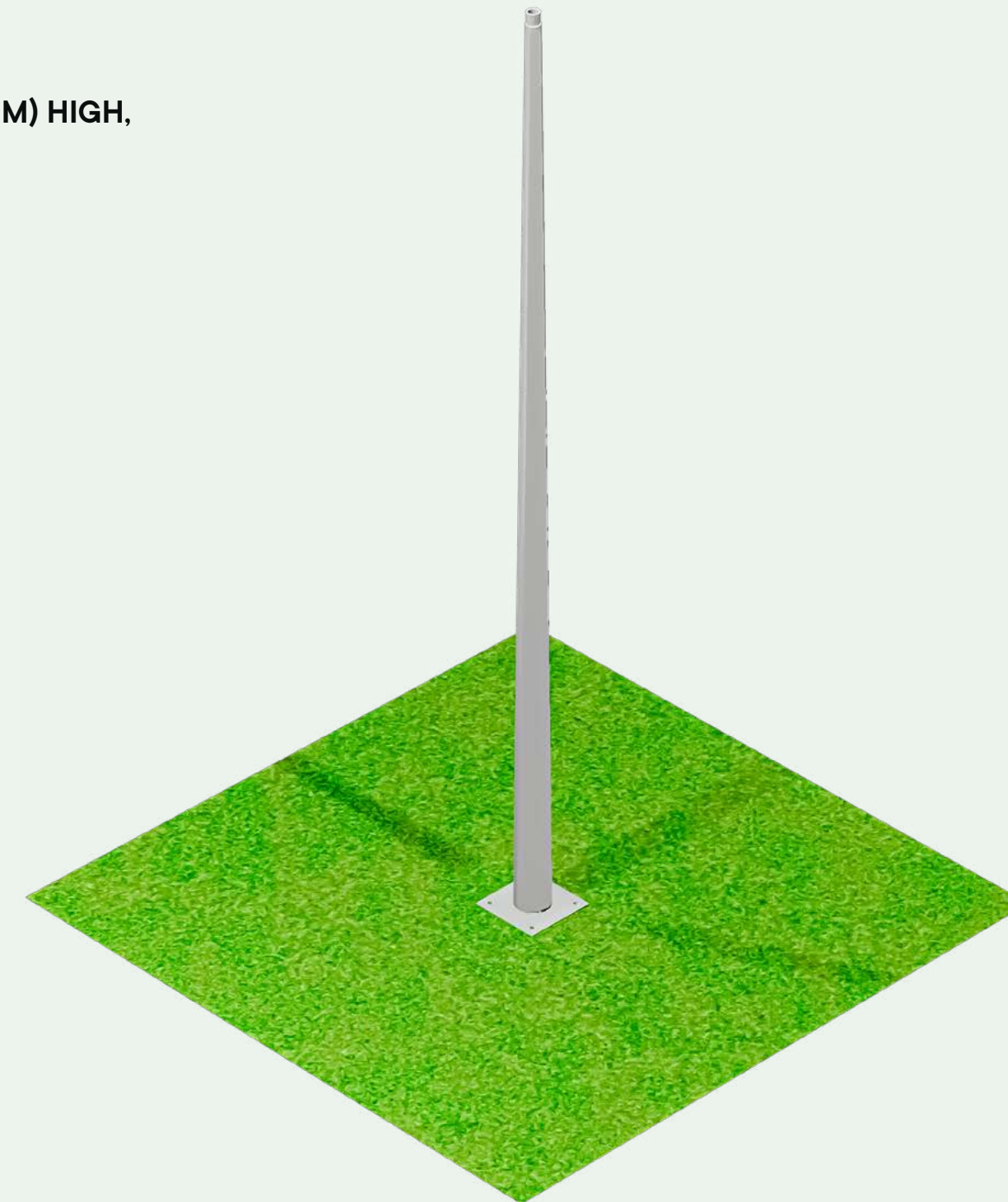
PARKING LOTS



PUBLIC STREETS



HIGHWAYS

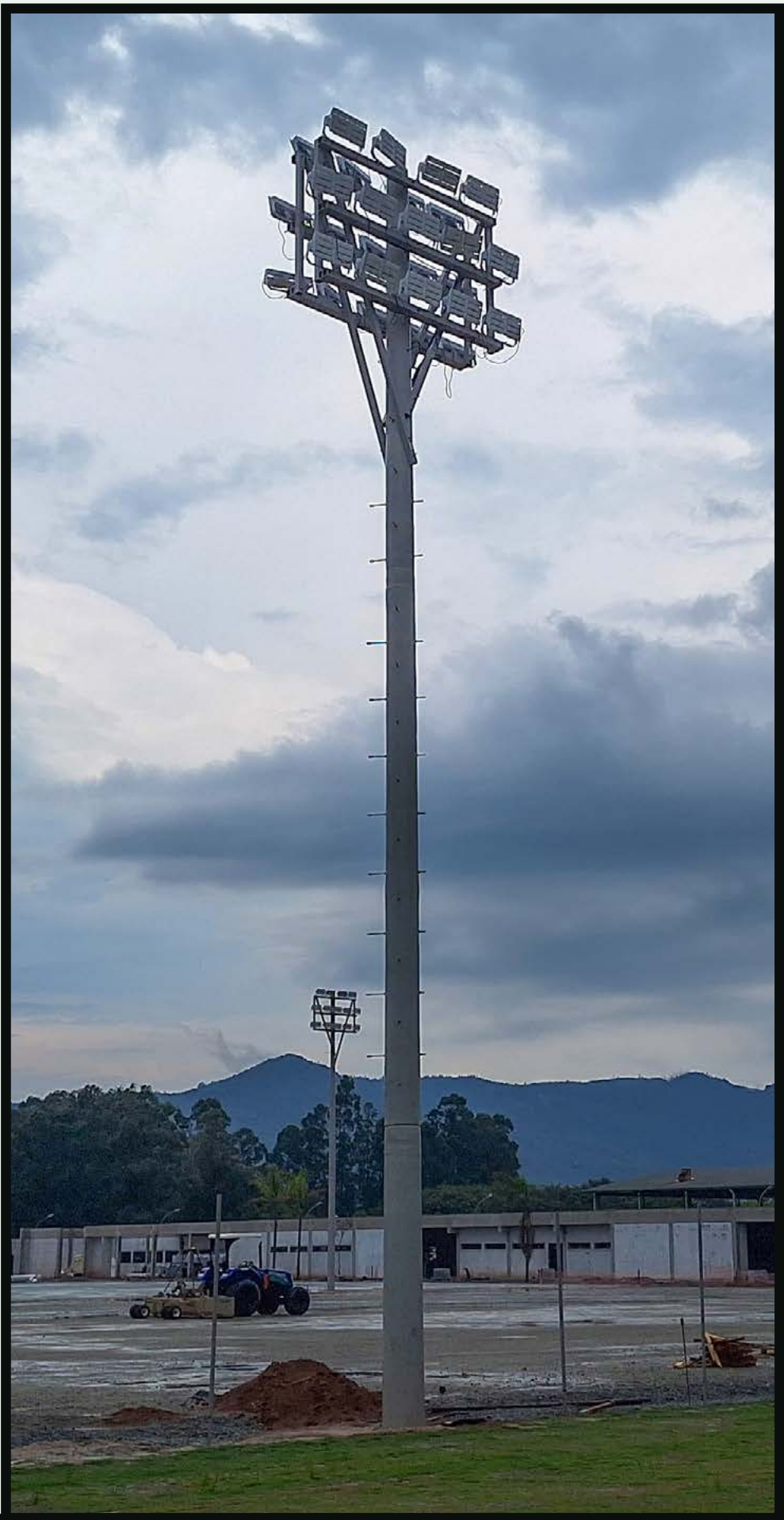
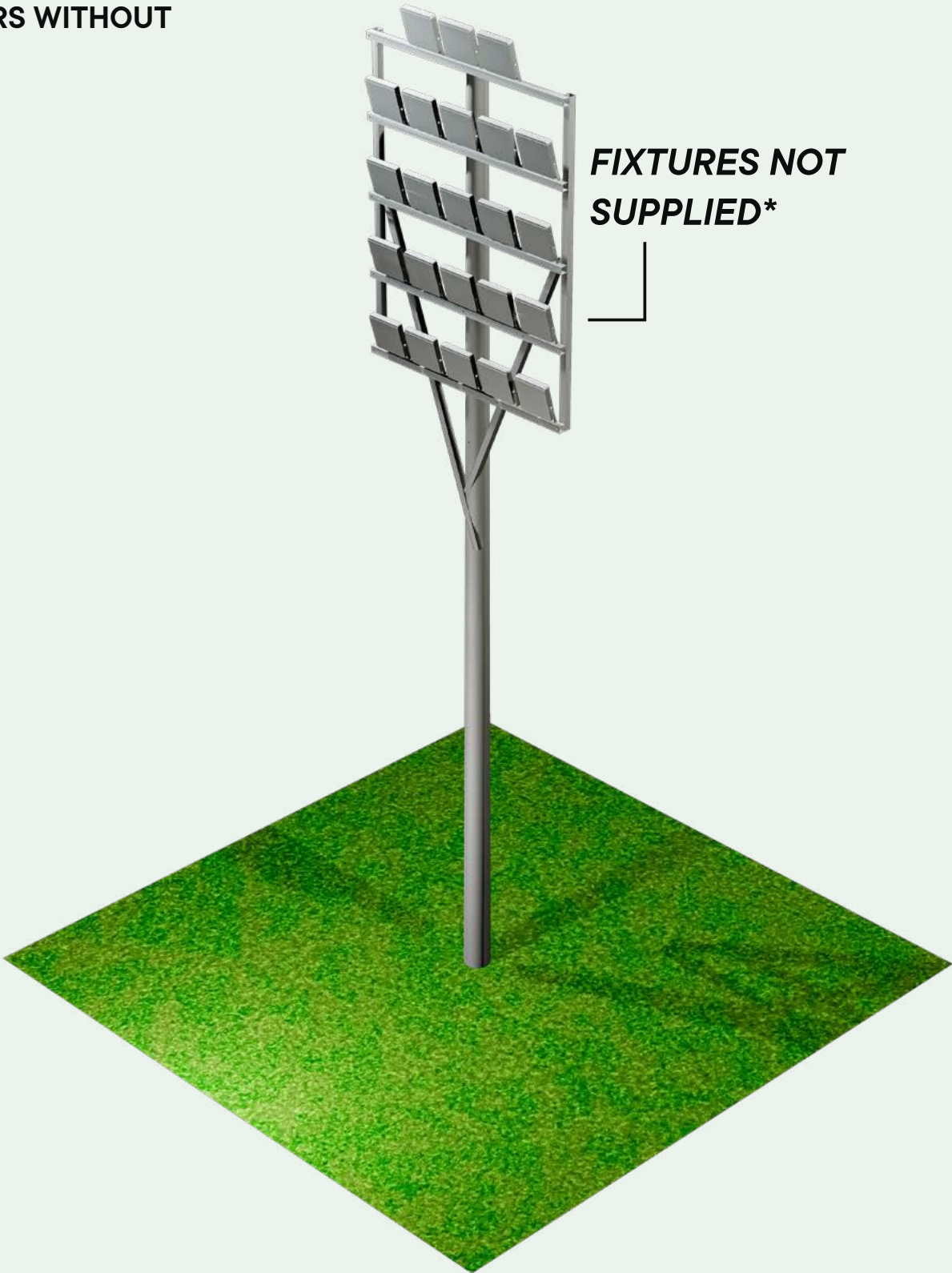




LIGHTING TOWERS

- MANUFACTURED USING THE FILAMENT WINDING PROCESS - CIRCULAR CONICAL SECTION OR CONICAL SECTION WITH SQUARE TOP
- ADAPTABLE TO FIT CROSSARMS AND CORES FOR LIGHTING ARMS, FIXTURES AND REFLECTORS
- SECTIONED IN UP TO 4 PARTS
- UP TO 145 FT (44 M) HIGH
- FINISH WITH SURFACE VEIL AND GEL COAT PAINTING
- U.V. BLOCKER
- SERVICE LIFE UP TO 50 YEARS WITHOUT MAINTENANCE
- SPECIAL DESIGNS

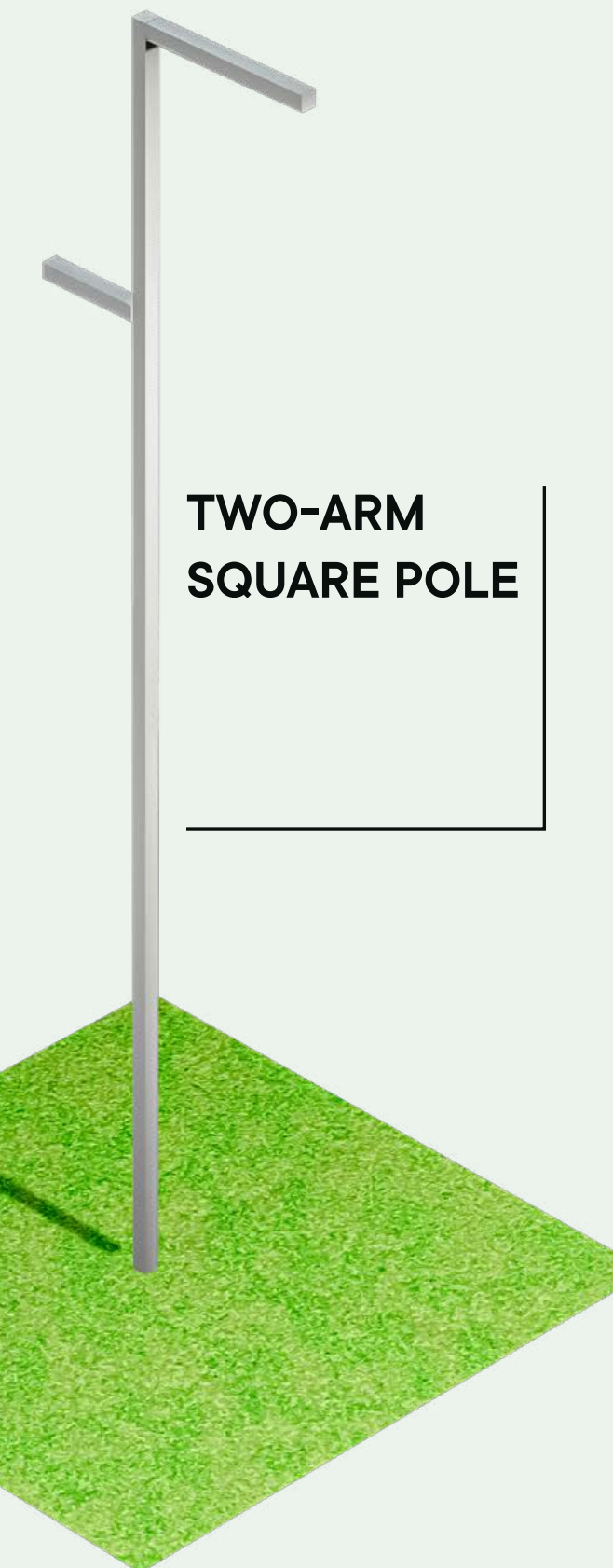
APPLICATIONS:



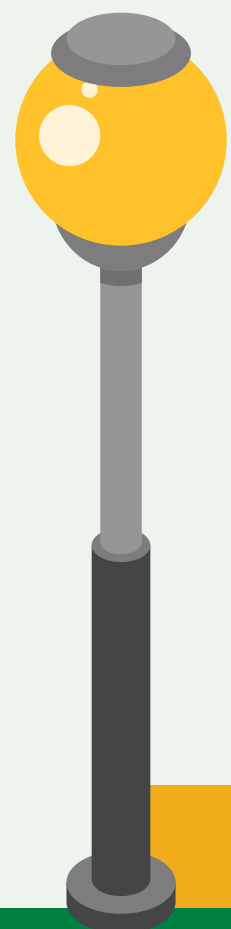
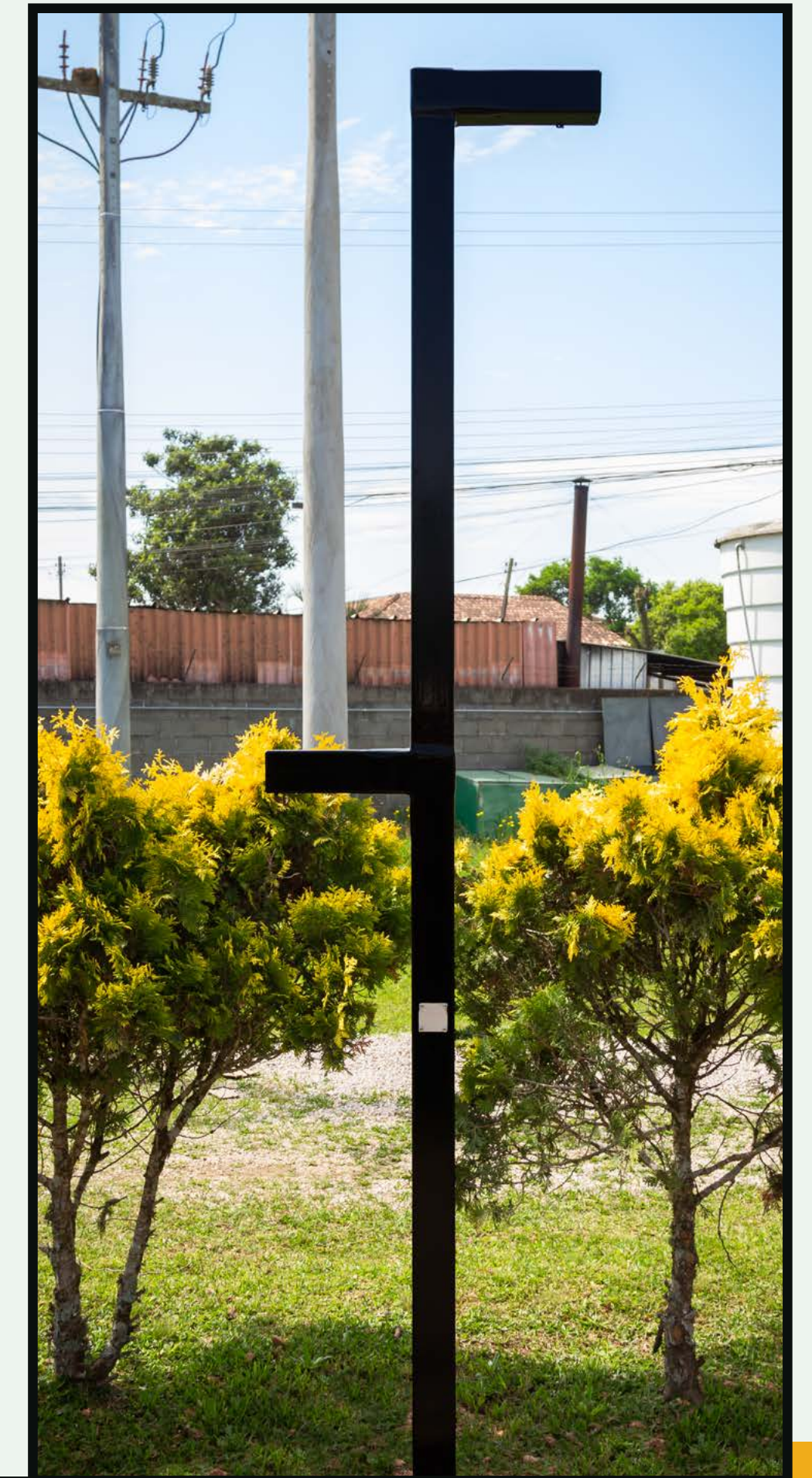


## NON-TAPERED POLES FOR PUBLIC, PRIVATE AND ROAD LIGHTING

- MANUFACTURED USING THE PULTRUSION PROCESS
  - AVAILABLE GEOMETRIES: 2 X 2 IN (50 X 50 MM), 3.5 X 2 IN (80 X 50 MM), 3.55 X 3.55 IN (90 X 90 MM), 3.55 X 4.5 IN (90 X 112 MM), Ø 23.75 IN (60.3 MM)
  - DIRECT EMBEDDED OR ANCHOR-BASED
  - SMOOTH FINISH WITH PU PAINT ACCORDING TO THE REQUESTED COLOR (SEE PAGE 17)
  - U.V. BLOCKER
  - SERVICE LIFE UP TO 50 YEARS WITHOUT MAINTENANCE
- ADAPTABLE TO FIT TIPS AND CORES FOR LIGHTING ARMS AND FIXTURES
  - SPECIAL DESIGNS
  - SINGLE SECTIONS - UP TO 20 FT (6 M) HIGH, greater heights upon request.



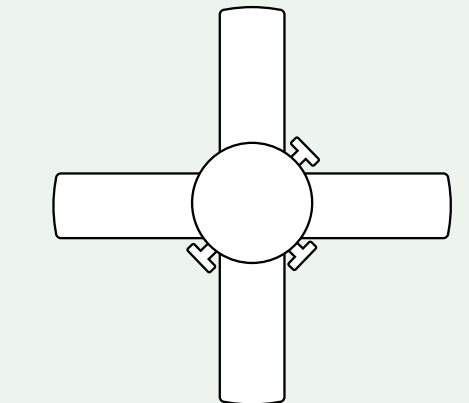
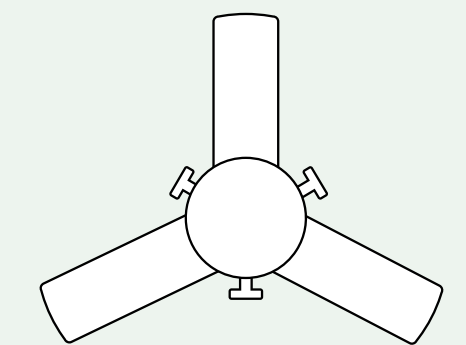
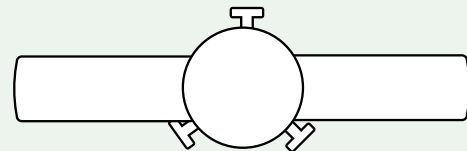
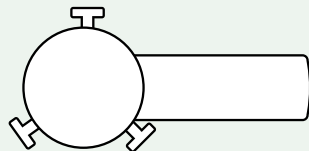
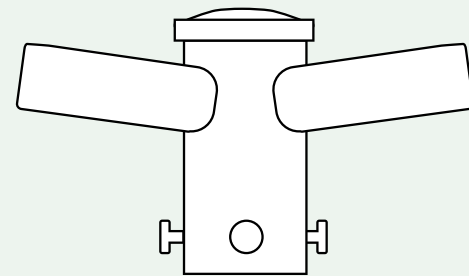
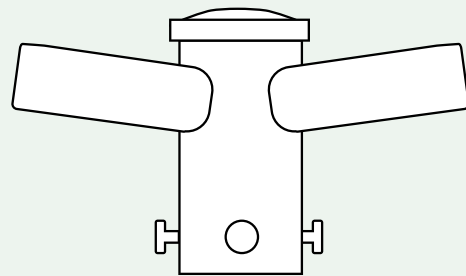
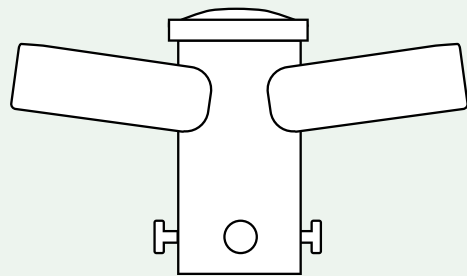
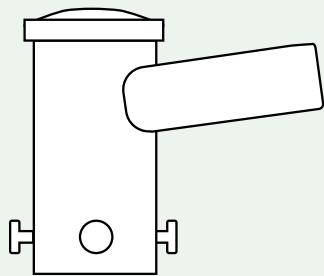
### APPLICATIONS:





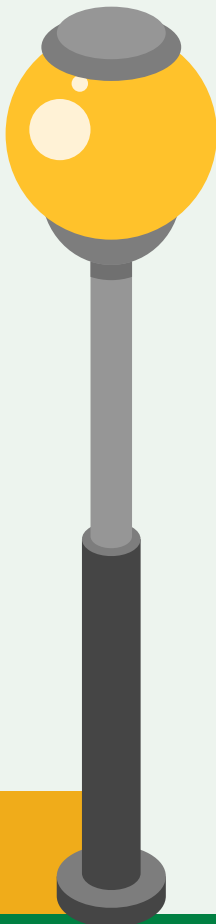
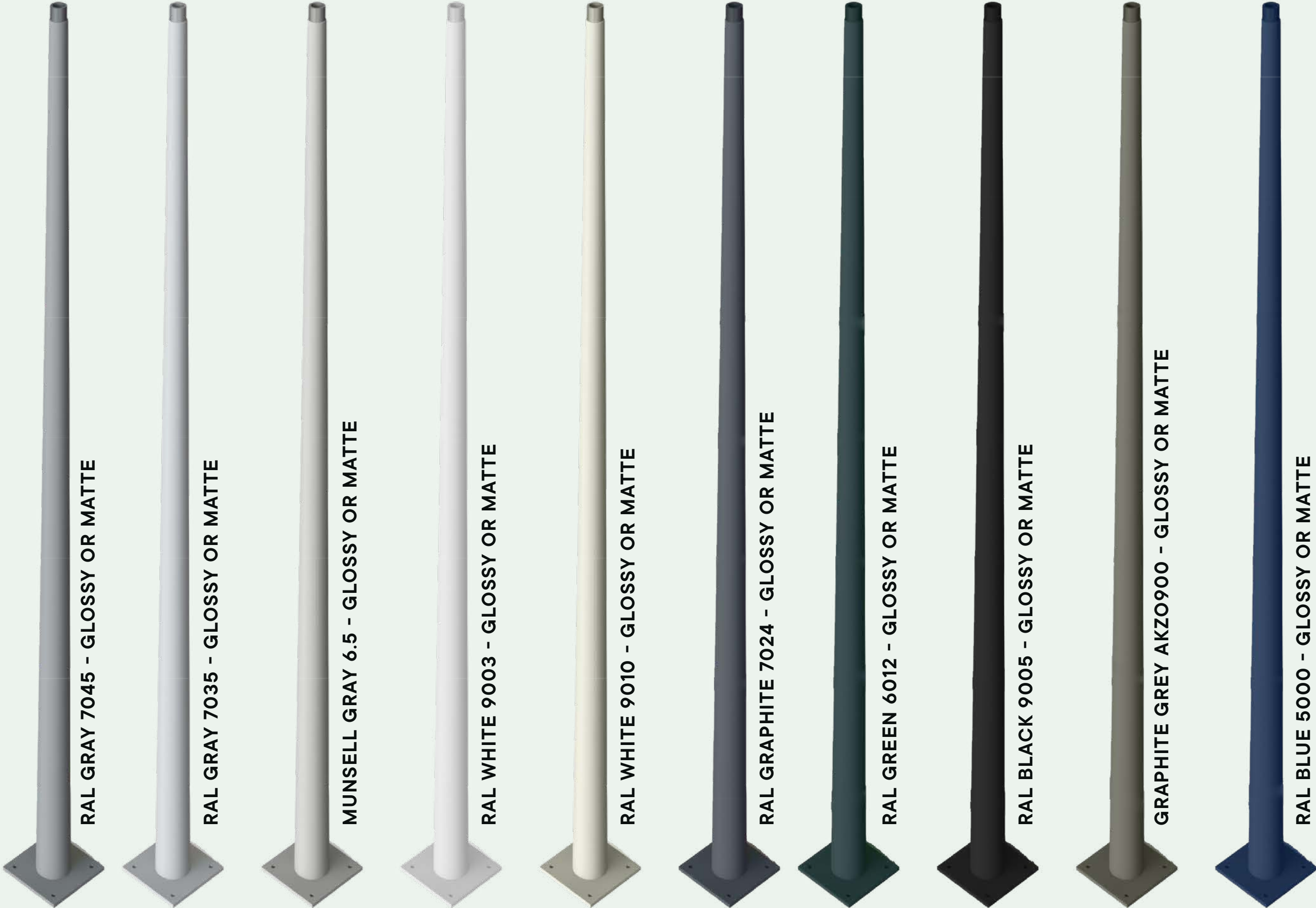
# ACCESSORIES

- REDUCTION TIPS • CORES FOR OUTPUTS OF UP TO 4 ARMS
  - CIRCULAR ARMS Ø 23.75 IN (60.3 MM) UP TO 6 FT (2 M) LONG
- Other lengths upon request..





AVAILABLE  
COLORS





## SPECIAL PROJECTS

**Ecofibra's engineering** team can calculate the perfect solution for your design. Based on the accessories that will be installed and/or loading schemes, engineering calculates the best structure configuration for your application.

### Examples:

- Structures for transition from overhead line to underground line
- Temporary structures for installing cables at crossings
- Structures to contain falling cables
- Off-Grid Structures

## OFF-GRID STRUCTURES



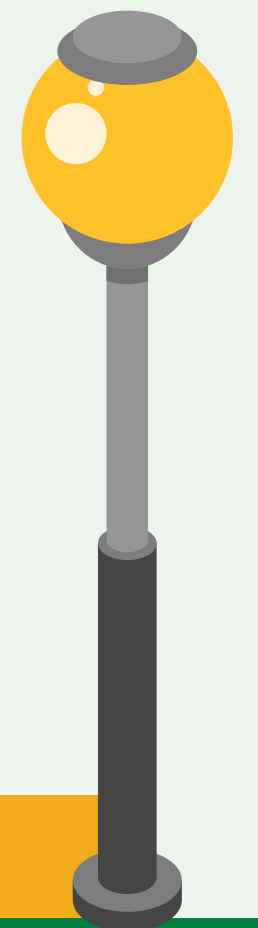
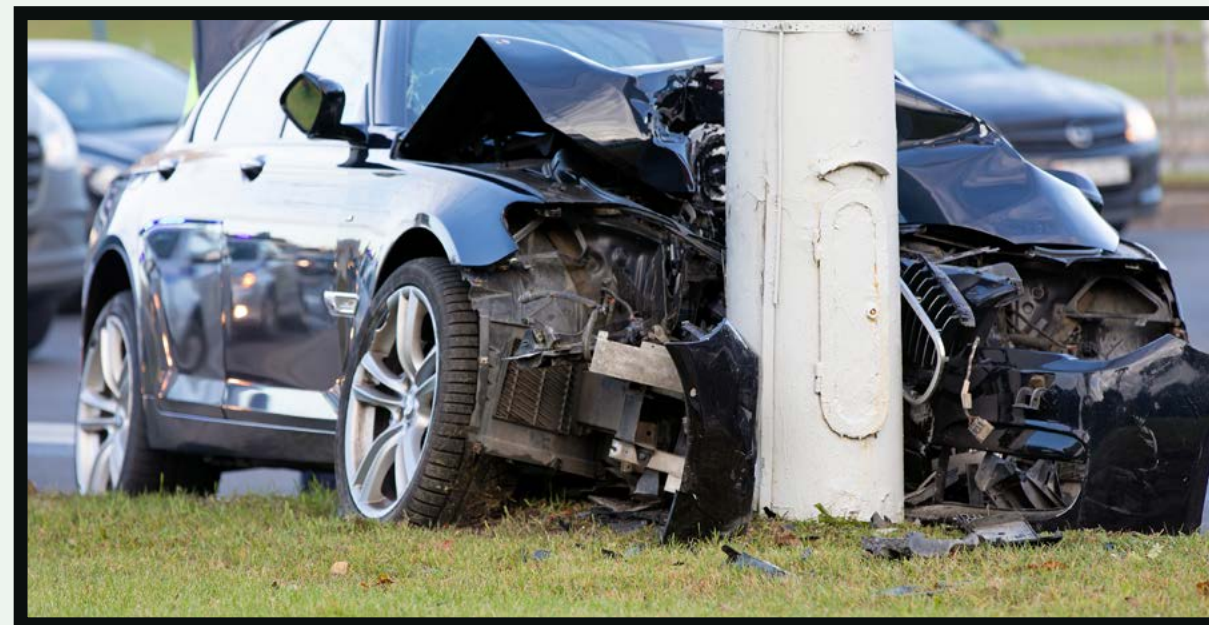
We also design collapsible poles. These are poles with a special structural design and manufacture, designed to collapse at the base when hit by a vehicle, reducing damage to the vehicle and increasing the safety of its occupants. In addition, when connected to the network, the collapsible pole hangs from the wires, which guarantees the integrity of the network and nullifies the risk of other poles falling due to the “domino effect”.

### •COLLAPSIBLE POLES



X

### •NORMAL POLES





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