IMARA
COMPOSITES

CATALOGUE

ENGINEERING CENTRE FOR COMPOSITE SOLUTIONS

Engineering centre developing project-ready solutions and supplying composite materials for civil, industrial, transportation and energy infrastructure.

ENGINEERING • MATERIALS • SUPPLY • TECHNICAL SUPPORT

DAR ES SALAAM 2026

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RELIABILITY REINFORCED

ABOUT THE COMPANY

Modern construction places increasingly high demands on the reliability, durability and efficiency of engineering structures. Rising costs for infrastructure maintenance, exposure to an aggressive environment and the need to increase the service life of facilities are creating demand for new generation materials.

IMARA COMPOSITES is an engineering centre for composite solutions in construction. The company develops project-ready solutions for a range of construction sectors and supplies composite materials for infrastructure projects.

The company combines engineering expertise, analysis of project conditions, selection of materials and technical support, offering solutions for civil, industrial, transport and energy construction.

Our product range includes GFRP rebar, prefabricated Bent Elements and accessories, GFRP mesh, structural microfibres and Composite Utility Poles. Composite dowels, rebar spacers and holders are grouped within the Bent Elements range. Together, these products form complementary solutions for a wide range of construction applications.

Our task is to help designers, contractors, government organisations and industrial enterprises implement modern engineering solutions aimed at long service life of facilities and reduction of operating costs. We accompany the project from task analysis and selection of materials to delivery and support for their use.

PHILOSOPHY

Modern construction requires not only high-quality materials, but also new engineering thinking. For IMARA COMPOSITES, work begins with understanding the problem and continues at the stages of selecting a solution, supplying materials and technical support. We view every project as a contribution to creating a more durable, safer and more efficient infrastructure.

Our work is guided by the belief that modern composite materials can transform how we build structures designed to serve for decades

MISSION

Create advanced composite solutions that help engineers and builders design more durable, efficient and sustainable infrastructure.

We strive to develop and deliver solutions that can reduce operating costs, improve structural reliability and open up new opportunities for the development of the modern construction industry.

VISION

To become one of the leading engineering centres for composite solutions in Africa and a reliable partner for international infrastructure projects.

We see the future of construction in the widespread use of modern materials, which ensure a longer service life of structures and can significantly increase the efficiency of resource use.

OUR VALUES

Quality

We ensure the quality of the proposed solutions by checking technical specifications, documentation and monitoring the compliance of materials with project requirements.

Innovation

We are constantly improving design analysis methods, expanding the possibilities of using composites and introducing modern engineering solutions.

Engineering Approach

Each product is developed taking into account the real requirements of the construction industry and modern design standards.

Reliability

We build long-term relationships with clients by fulfilling our obligations and maintaining a high level of professional responsibility.

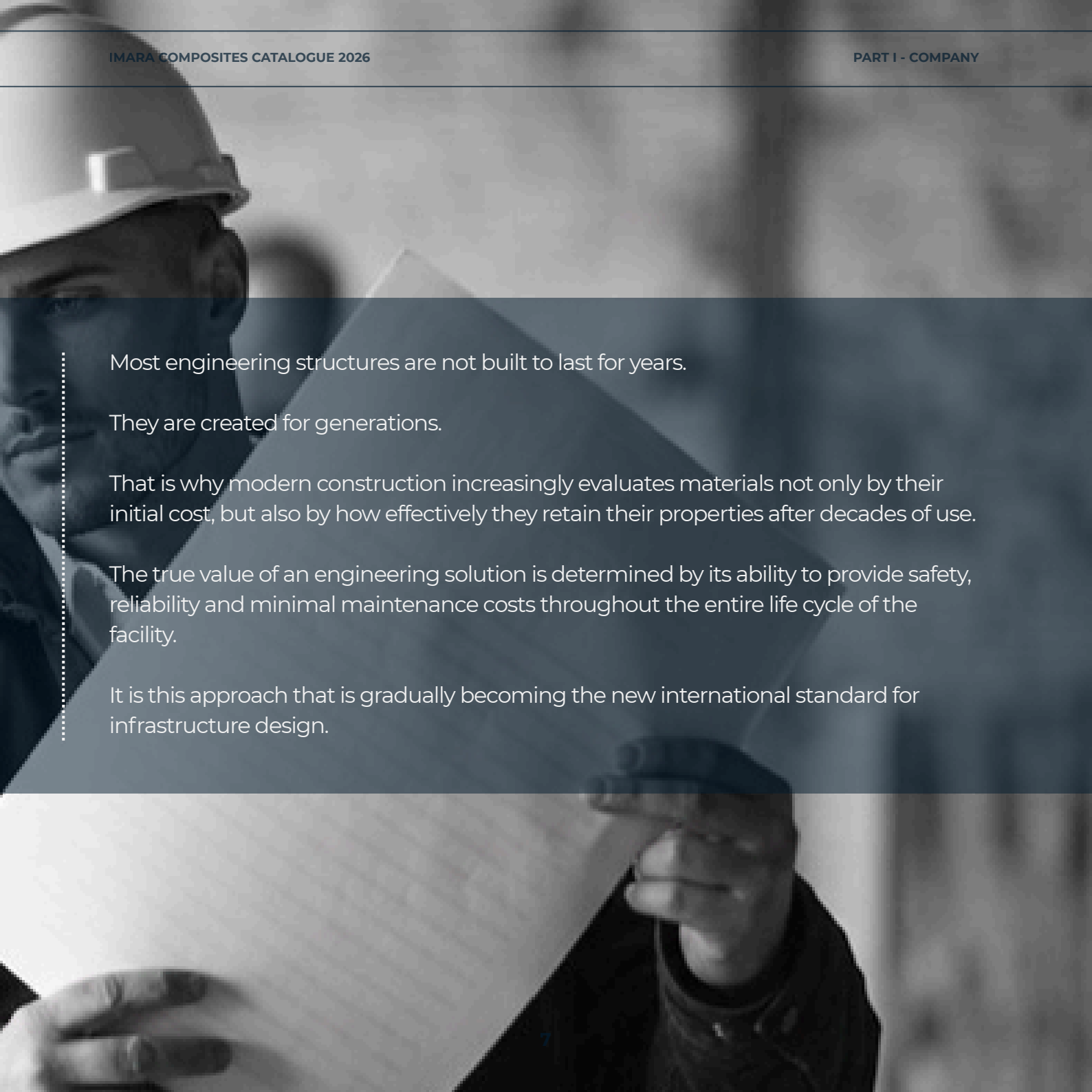
Partnership

We view cooperation as the basis of sustainable development and strive to become part of the success of every project we implement.

Responsibility

We understand the importance of infrastructure to society and create materials that can last for generations.

“THE BEST ENGINEERING SOLUTIONS BECOME INVISIBLE —THEY SIMPLY KEEP WORKING LONG AFTER PEOPLE STOP THINKING ABOUT THEM.”



Most engineering structures are not built to last for years.

They are created for generations.

That is why modern construction increasingly evaluates materials not only by their initial cost, but also by how effectively they retain their properties after decades of use.

The true value of an engineering solution is determined by its ability to provide safety, reliability and minimal maintenance costs throughout the entire life cycle of the facility.

It is this approach that is gradually becoming the new international standard for infrastructure design.

WHY TRADITIONAL MATERIALS NO LONGER MEET MODERN REQUIREMENTS

The future of construction is determined not only by new design technologies, but also by materials that can ensure the durability of infrastructure over several generations.

THE WORLD IS BUILDING IN A NEW WAY

In recent decades, the construction industry has changed significantly more than in the previous half century.

Today, engineers design structures with a design life of 75–100 years or more. At the same time, requirements for safety, structural stability, operating costs and construction speed are increasing.

Traditional building materials continue to play an important role, but the operating conditions of modern facilities are becoming increasingly complex. Sea water, aggressive chemical environments, high humidity, road reagents and extreme climatic conditions significantly increase the load on structures.

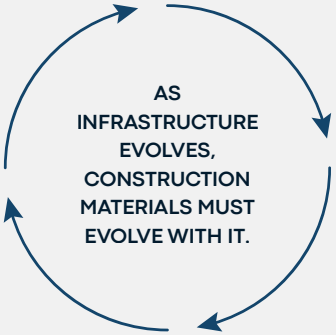
Therefore, all over the world, more and more attention is being paid to new generation materials that can ensure a long service life of structures with minimal operating costs. Composite materials have become one of the most significant areas of this development.

- Increasing infrastructure lifespan
- Increased cost of maintaining facilities
- Transition to sustainable construction
- Introduction of innovative engineering materials

INFRASTRUCTURE IS BECOMING MORE COMPLEX

For decades, steel rebar has remained the main material for reinforcing reinforced concrete structures. Due to its mechanical properties, it has become the standard for most construction projects around the world.

However, the operating conditions of modern infrastructure have changed significantly. Today, many facilities operate in aggressive environments, subject to constant exposure to moisture, sea salt, chemicals, road reagents and cyclic temperature loads.



Under such conditions, the durability of materials and the cost of their operation throughout the entire life cycle of the structure become of particular importance.

That's why engineers are increasingly looking at materials that can provide longer service life to structures without increasing maintenance costs.



01 CORROSION

Coastal areas, wastewater treatment plants, the chemical industry and marine infrastructure place significantly higher demands on construction materials.

02 SERVICE LIFE REQUIREMENTS

Modern infrastructure projects are designed to last for many decades. This requires the use of materials that can maintain their properties for a long time.

03 MAINTENANCE COST

Repairing infrastructure facilities requires significant financial costs, especially if the restoration involves damage to the reinforcement inside the concrete.

04 HARSH ENVIRONMENTS

Exposure to moisture, salts and chemically active substances gradually leads to the destruction of steel reinforcement and a decrease in the durability of reinforced concrete structures.

WHAT IS GFRP?

Glass Fibre Reinforced Polymer (GFRP) is a modern composite material consisting of high-strength glass fibres united by a polymer matrix.

Glass fibres absorb the main tensile loads, and the polymer matrix binds them into a single structure, protects them from environmental influences and ensures the joint operation of all components.

This combination allows us to obtain a material with high strength, low weight and corrosion resistance.

It is the combination of these properties that makes GFRP an effective solution for facilities operating in difficult operating conditions.

PRODUCTION STEPS

01 PREPARATION OF GLASS FIBRES

02 IMPREGNATION WITH POLYMER RESIN

03 FORMATION OF A PROFILE

04 POLYMERIZATION AND CURING

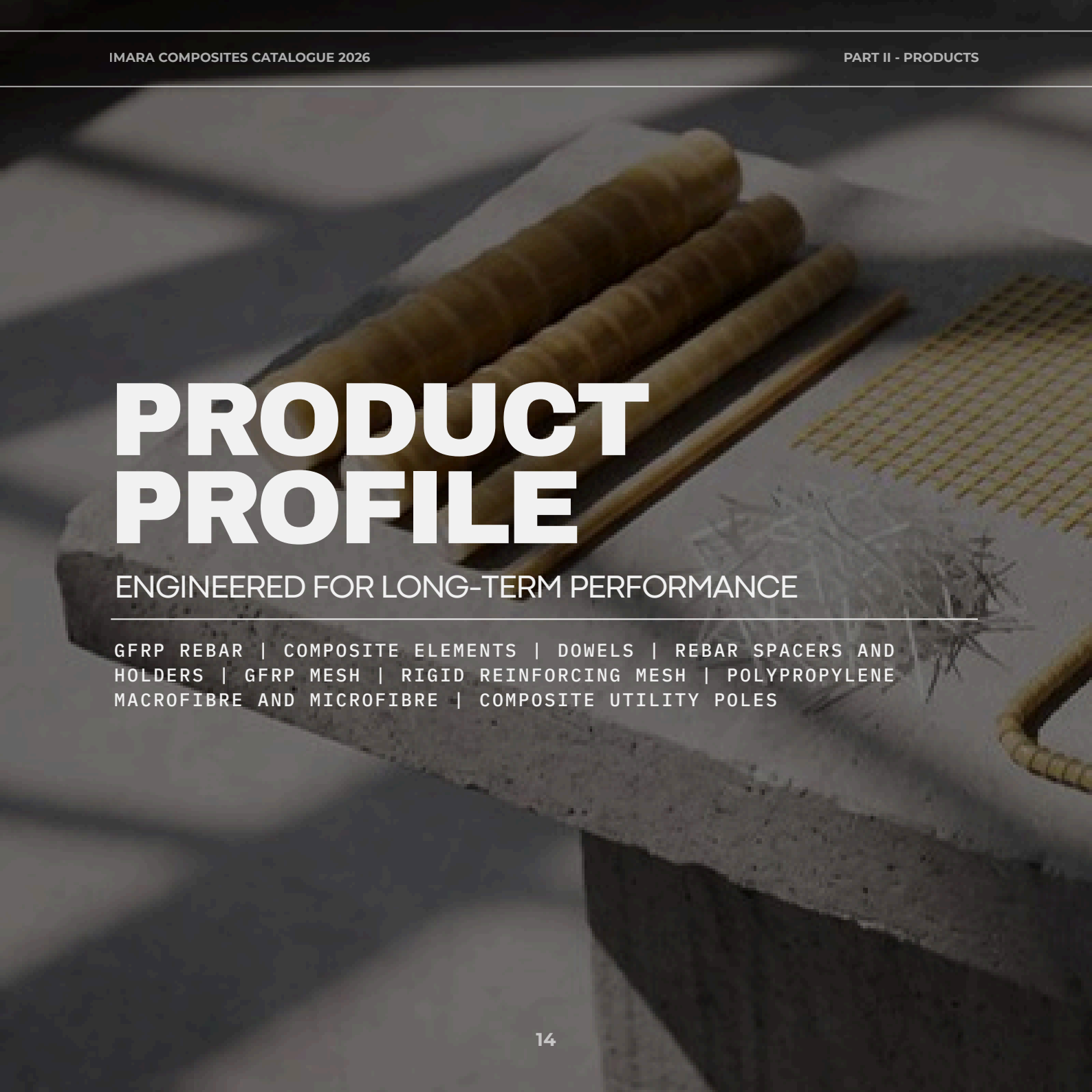
05 QUALITY CONTROL AND PACKAGING

KEY BENEFITS

- Not subject to corrosion
- High tensile strength
- Low dead weight
- Does not conduct electricity
- Does not create a magnetic field
- High chemical resistance

KEY TAKEAWAY

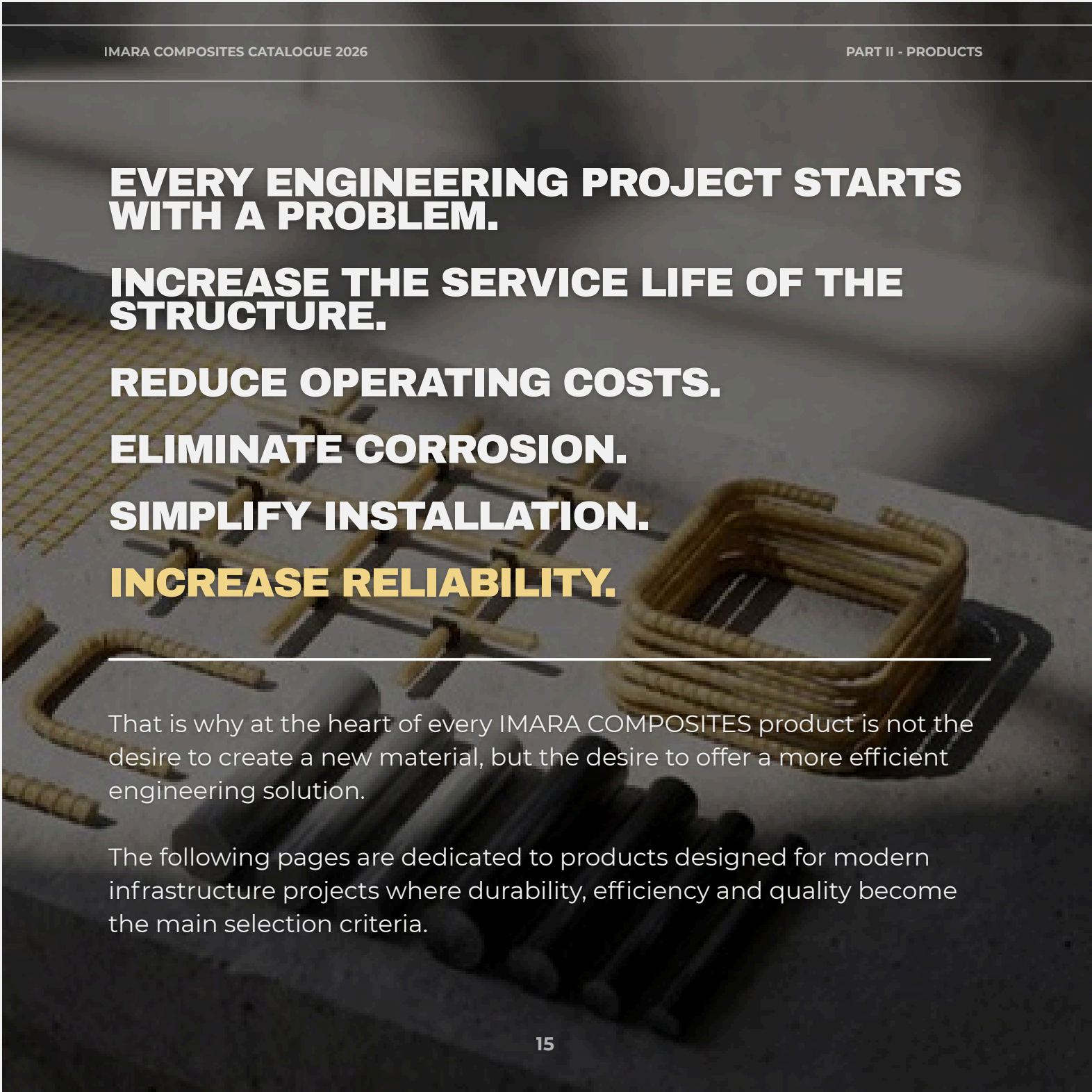
The advantages of GFRP are determined by the structure of the material itself, in which glass fibres and a polymer matrix work as a single engineering system.



PRODUCT PROFILE

ENGINEERED FOR LONG-TERM PERFORMANCE

GFRP REBAR | COMPOSITE ELEMENTS | DOWELS | REBAR SPACERS AND HOLDERS | GFRP MESH | RIGID REINFORCING MESH | POLYPROPYLENE MACROFIBRE AND MICROFIBRE | COMPOSITE UTILITY POLES



EVERY ENGINEERING PROJECT STARTS WITH A PROBLEM.

INCREASE THE SERVICE LIFE OF THE STRUCTURE.

REDUCE OPERATING COSTS.

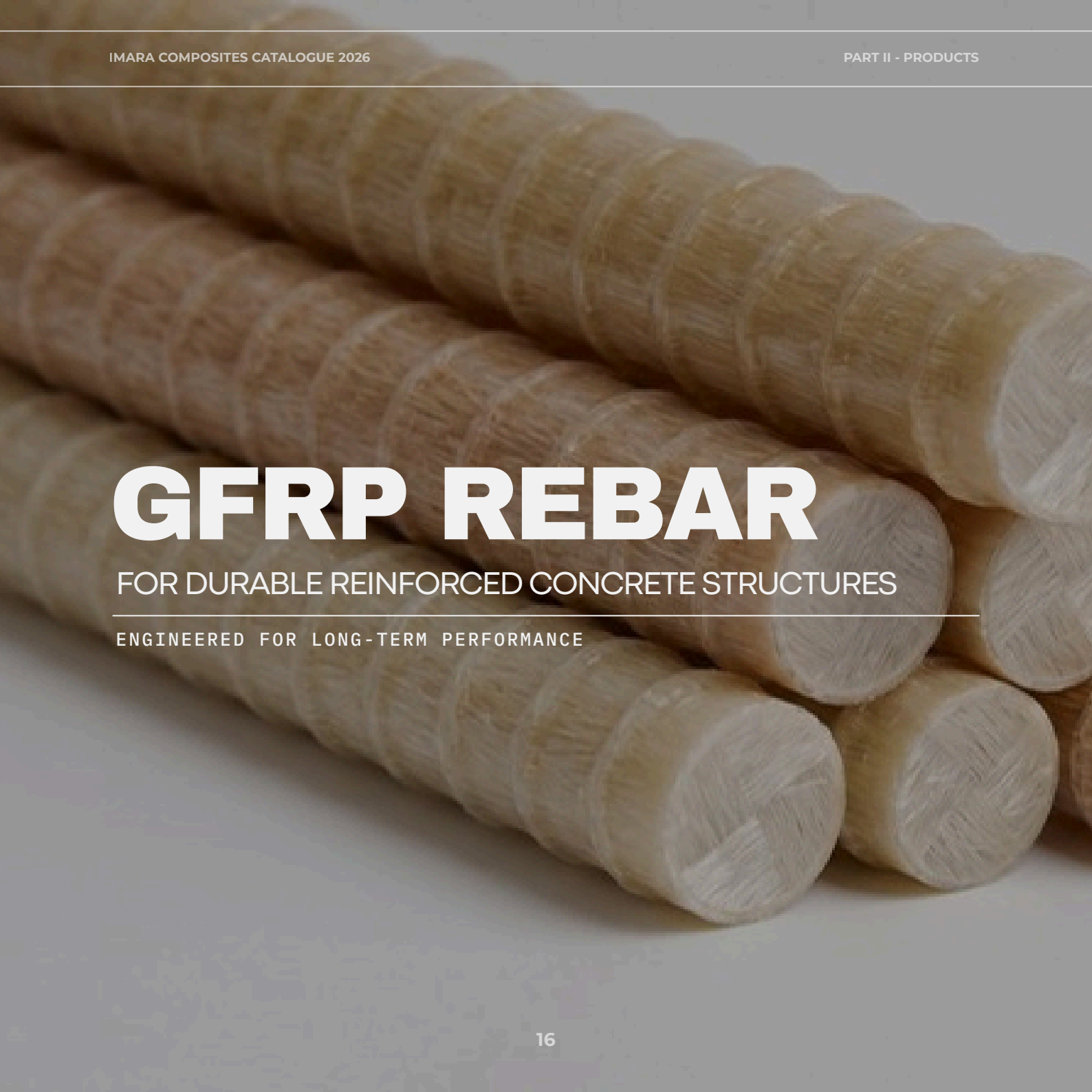
ELIMINATE CORROSION.

SIMPLIFY INSTALLATION.

INCREASE RELIABILITY.

That is why at the heart of every IMARA COMPOSITES product is not the desire to create a new material, but the desire to offer a more efficient engineering solution.

The following pages are dedicated to products designed for modern infrastructure projects where durability, efficiency and quality become the main selection criteria.



GFRP REBAR

FOR DURABLE REINFORCED CONCRETE STRUCTURES

ENGINEERED FOR LONG-TERM PERFORMANCE

GFRP REBAR

DESCRIPTION

GFRP Rebar is a high-strength glass fibre reinforced polymer bar for reinforced-concrete structures where durability, corrosion resistance and lower operating costs are critical.

The material combines low weight, high tensile strength and complete resistance to moisture, salts and most aggressive chemical environments, ensuring a long service life of the structure without the risk of corrosion failure.

KEY BENEFITS

- ✓ Corrosion Free
- ✓ Lightweight
- ✓ High Tensile Strength
- ✓ Electrically Non-Conductive
- ✓ Non-Magnetic
- ✓ Chemical Resistant
- ✓ Easy Transportation
- ✓ Reduced Life-Cycle Cost

AVAILABLE DIAMETERS

- Ø6
- Ø8
- Ø10
- Ø12
- Ø16
- Ø20
- Ø25
- Ø32

TYPICAL APPLICATIONS

- ◉ Foundations
- ◉ Concrete Slabs
- ◉ Bridges
- ◉ Roads & Highways
- ◉ Marine Structures
- ◉ Retaining Walls
- ◉ Drainage Systems
- ◉ Water Infrastructure

TECHNICAL HIGHLIGHTS

Material	Surface	Corrosion Resistance	Electrical Conductivity	Magnetic Properties	Weight
Glass Fibre Reinforced Polymer	Sand-Coated Ribbed Profile	Excellent	None	Non-Magnetic	Approximately 75% lighter than steel

COMPARISON OF CHARACTERISTICS

Comparison of Characteristics

Properties	Traditional Steel Rebar	Glass Fibre Reinforced Polymer (GFRP) Rebar
Corrosion Resistance	Corroded	Not subject to corrosion
Weight	Heavy	Up to 75% lighter
Tensile Strength	High	Significantly higher with less weight
Electrical Conductivity	Conducts electrical current	Dielectric
Magnetic Properties	Magnetic material	Non-magnetic material
Thermal Conductivity	High	Low
Chemical Resistance	Limited by aggressive environment	High stability
Transportation	Requires greater lifting capacity	Easier logistics
Installation	Higher mass	More convenient work on site
Service Life	Depends on operating conditions	Designed for long-term use without corrosion
Life Cycle Cost	May increase due to renovation	Potentially lower due to lower maintenance costs

Equivalent Replacement of Steel Rebar

Steel rebar, class A-III		Composite rebar, "IMARA COMPOSITES"	
Dynamic Diameter (mm)	Weight 1m, kg	Outer Diameter (mm)	Weight 1m, kg
Ø6	0.222	Ø5	0.03
Ø8	0.395	Ø6	0.051
Ø10	0.617	Ø7	0.066
Ø12	0.888	Ø8	0.084
Ø14	1.21	Ø10	0.137
Ø16	1.58	Ø11	0.137

GFRP REBAR

SAFETY MEASURES

When using fibreglass rebars, be sure to follow the safety rules:

- Hand protection: Gloves with latex or PVC coating;
- Face protection: Respiratory mask, glasses;
- Skin protection: Clothing that covers all areas of the body.

Uncoil the rebar coils in a vertical manner. Large coils should be uncoiled with the assistance of at least 2 persons involved and only in cle proximity to the construction work is being carried.

EQUAL STRENGTH STEEL REPLACEMENT

The equal strength diameter means the outer diameter of fiberglass rebar the strength parameter of which corresponds with same of steel rebar of the same diameter.

SUPPLY & PACKAGING

Supplied in the following forms:

- Ø4 - 32 mm: 12 meter long rebars or at customer's request.
- Ø4 - 12 mm: coils of up to 100 meters.

Due to the properties of fibreglass rebar, it can be twisted into coils without loss of strength and quality. The coils can be packed using packing tape, plastic wrap or cable ties.

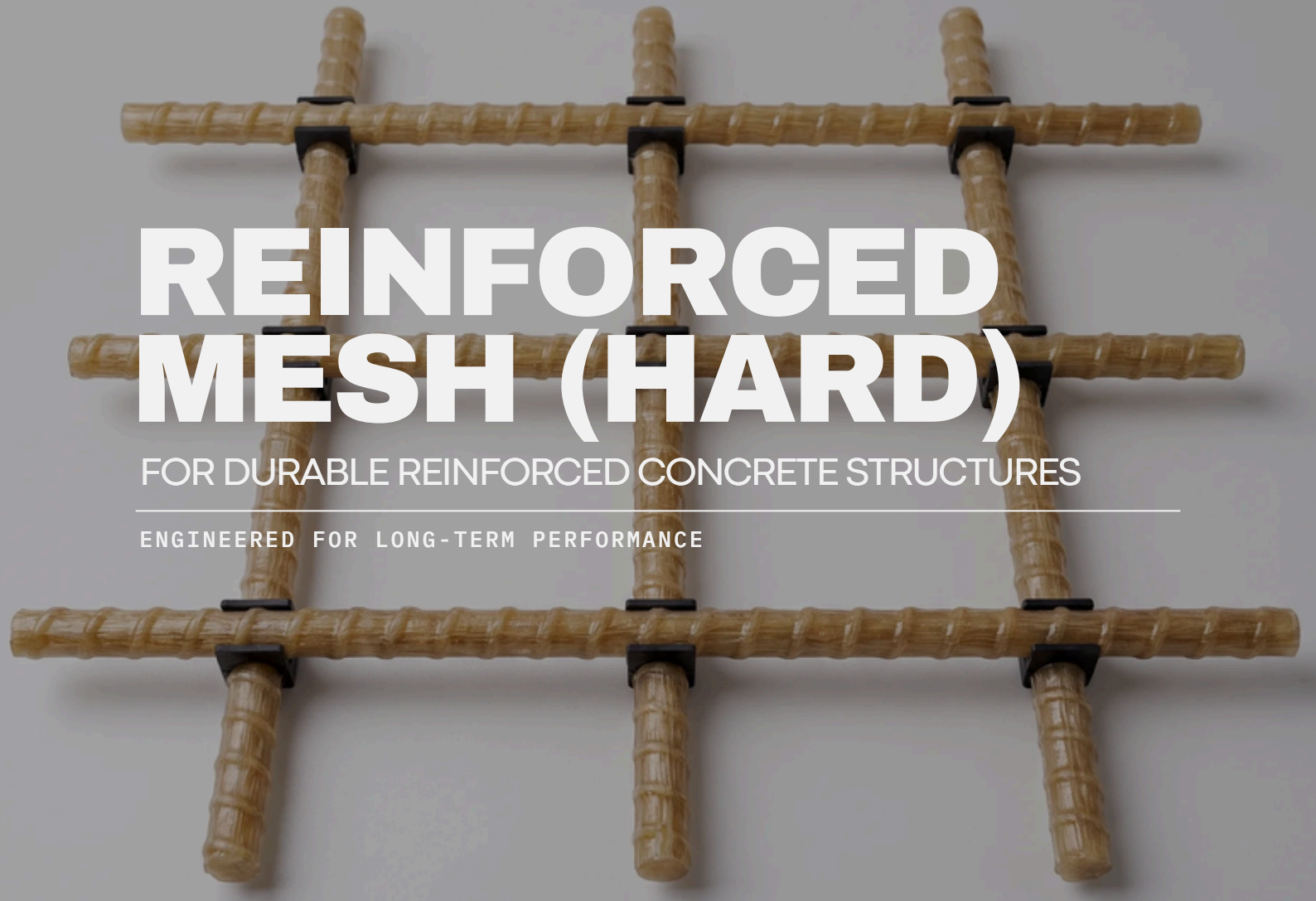
STORAGE & TRANSPORTATION

- Rebar is stored horizontally on racks or specially designated storage areas, in unheated or heated warehouses 1 meter from the heating devices as closest.
- When storing composite rebar for a long time it is necessary to protect it from ultraviolet exposure.
- For cutting of bars it is recommended to use angle grinder to get non-damaged and non-deformed cut of the bar.
- To bind the bars together you can use both the binding wire and plastic

GFRP REBAR

Equivalent-Strength Rebar Table

Steel Ø, mm	Cross-sectional area, mm²	Tensile force, N	GFRP: outside Ø, mm	Nominal Ø, mm	Cross-sectional area, mm²	Tensile force, N
5	19.6	7 658	4	3.2	8	8 847
6	28.3	11 027	5	4.2	13.9	15 240
8	50.3	19 604	6	5.2	21.2	23 361
10	78.5	30 631	7	6.2	30.2	33 210
12	113.1	44 108	8	7.2	40.7	44 787
14	153.9	60 036	10	9.2	66.5	73 124
16	201.1	78 414	11	9.8	75.4	82 973
18	254.5	99 243	12	10.8	91.6	100 770
20	314.2	122 522	14	12.8	128.7	141 548



REINFORCED MESH (HARD)

FOR DURABLE REINFORCED CONCRETE STRUCTURES

ENGINEERED FOR LONG-TERM PERFORMANCE

REINFORCED MESH (HARD)

DESCRIPTION

This material is a perpendicularly joined bars forming a strong mesh designed for use in conditions of significant mechanical loads and the chemically aggressive environments. Accordingly, the purpose of the reinforced mesh in the construction industry is to create strong structure frame, connect and fix the elements of the structure.

SUPPLY AND DIMENSIONS

Reinforced “IMARA COMPOSITES” is made of bars with diameter of 4 - 32 mm; cell sizes, mesh dimensions and methods of fixing bars (wire, cable ties, etc.) can be chosen based on the customer's requirements.

ADVANTAGES

The reinforced mesh is widely used due to its special properties, which provide a lot of advantages:

- Crack reduction
- Energy saving
- Low weight - 4 times less than steel mesh
- Minimization of vibrations and loads
- Absence of "cold bridges" in the structure
- Strength under loads for breaking out of the wall, tensile and bending is 3-6 times higher than steel mesh
- High chemical and corrosion resistance in extreme conditions - at elevated temperatures and humidity

TYPES OF FRAMES

Reinforced mesh is made in the form of:

- Plane mesh – fiberglass flat reinforced frame exactly reproduces the structure of the steel flat frame, but at the same time the fiberglass itself does not have the negative properties that the steel has. It is used for different types of foundation, but can also be used for bent elements);
- Cages – is used for different types of two or more reinforced elements, for structure of the craft areas. Cages are used in the manufacture of structures and pillars that bear a vertical load.

REINFORCED MESH (HARD)

TYING METHODS

Rebar tying is fast and quite simple. At the same time, it is important to ensure that the finished design does not change its initial shape or dimensions, otherwise this may affect the quality of the finished structures.

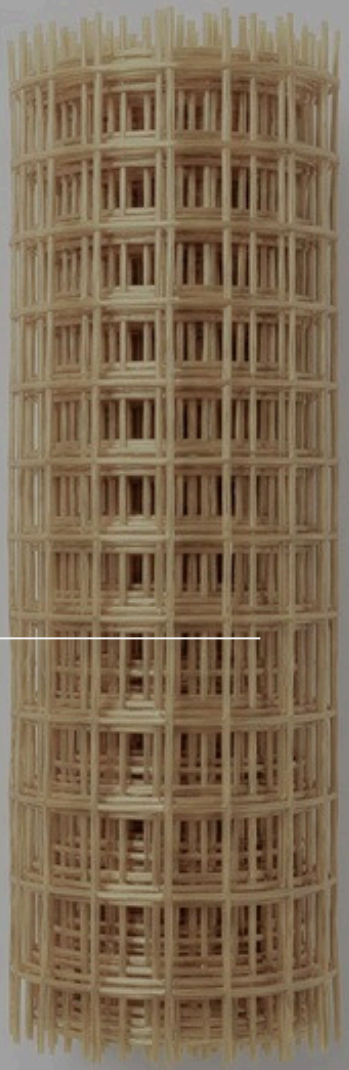
For proper tying of composite fiberglass rebar, the following options can be used:

- Rebar holders (this method of rebar connection is the easiest, it is only necessary to snap the rebar into the holder, and the rebar is properly fastened to each other. By fixing the rebar, the holder reinforcing layer, the holders, that are the variety of the pre-mesh reinforced frame not to settle under the gravity of the mortar, and create a protective layer of concrete of the desired height);
- Plastic ties are tightened and latched on the reinforcement at the point of connection. The method reduces the time for tying the reinforced frame in comparison with the tightening by metal wire, while eliminating its dynamic risks;
- Metal (at nailing/tying its wire (ties) case, the tying process will not differ from the process of tying steel reinforcement, while a thick metal wire is needed - it should not be overtightened, otherwise it will easily break);
- Fabric tying elements (this type of bars connection is used in structures that have the possibility of deformation and facilitates the weight of the structures themselves).

TOOLS FOR TYING

If the customer prefers to carry out the tying of the reinforced mesh with metal wire, it is recommended to use special tools to facilitate this process:

- Automatic tying pliers;
- Hooks - manual and semi-automatic (screw).



GFRP MESH

COMPOSITE REINFORCING MESH

RELIABLE REINFORCEMENT FOR CONCRETE STRUCTURES

GFRP MESH

DESCRIPTION

GFRP Mesh is a composite reinforcing mesh designed for reinforcing concrete slabs, pavements, floors, foundations and precast concrete elements. Due to its high corrosion resistance and low weight, the mesh provides durable reinforcement for structures operating in wet, chemically aggressive or marine environments. The use of GFRP Mesh allows you to reduce transportation costs, speed up installation and significantly increase the service life of concrete structures.

KEY BENEFITS	AVAILABLE CONFIGURATIONS	TYPICAL APPLICATIONS
✓ Corrosion Free	◎ Standard Mesh Panels	◉ Concrete Floors
✓ Lightweight	◎ Custom Panel Sizes	◉ Industrial Slabs
✓ High Tensile Strength	◎ Various Bar Diameters	◉ Roads & Pavements
✓ Easy Handling	◎ Different Grid Spacing	◉ Parking Areas
✓ Fast Installation		◉ Precast Concrete
✓ Non-Conductive		◉ Bridge Decks
✓ Chemical Resistant		◉ Marine Structures
✓ Long Service Life		◉ Drainage Infrastructure

DIMENSIONS

The mesh consists of round GFRP bars arranged perpendicular to one another and fixed at their intersections to form square cells.

- Mesh width: 1 or 2 m.
- Cell size: 50×50, 100×100, 150×150 or 200×200 mm.
- Rod diameter: 2–6 mm.
- Supply formats: 6 m or 12 m flat panels, custom lengths on request, and rolls up to 100 m.

STORAGE, CUTTING AND SAFETY

Store the mesh horizontally on racks or designated storage areas, at least 1 m from heating equipment and protected from ultraviolet radiation. Cut it with an angle grinder. Unroll mesh horizontally on a flat surface. Wear gloves, respiratory protection, eye protection and clothing that covers exposed skin.

GFRP Mesh v.s. Steel Mesh

Characteristics (Ø 3 mm, cell size 100×100 mm)	Steel mesh VR-1	IMARA COMPOSITES GFRP mesh
Bar tensile strength, MPa	570	1 100–1 200
Elongation, %	2.5	2.3
Thermal conductivity, W/(m·°C)	56	0.35
Bar modulus of elasticity, MPa	200 000	50 000
Density, t/m³	7.8	1.9
Durability	According to building codes	Design service life of at least 80 years
Minimum operating temperature, °C	−40	−50
Maximum operating temperature, °C	350	60
Electrical conductivity	Conductive	Dielectric
Corrosion and chemical resistance	Low	High
Magnetic properties	Magnetic	Non-magnetic
Supplied as flat panels	Deformation possible	No permanent deformation
Supplied in rolls	Requires straightening after unrolling	Returns to its original shape
Shear strength of joints, kgf	Not standardised	30
Joint pull-off strength, kgf	Not standardised	20

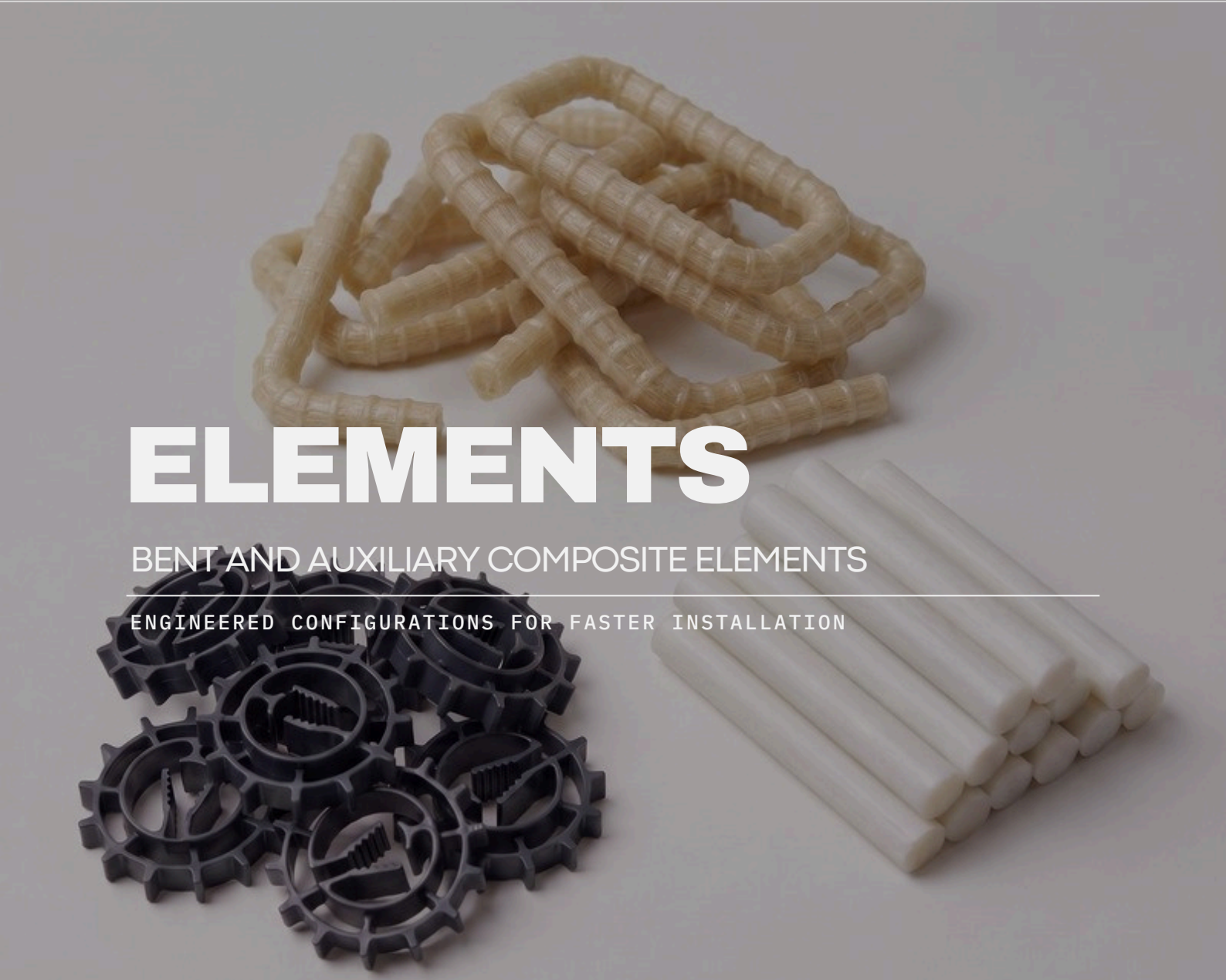
GFRP MESH

EQUIVALENT REPLACEMENT OF STEEL MESH

Cell size, mm	Ø2	Ø2.5	Ø3	Ø4	Ø5	Ø6	Rods per 1 m²
50×50	0.24	0.4	0.56	0.92	1.48	2.2	42
100×100	0.12	0.2	0.28	0.46	0.74	1.1	22
150×150	0.084	0.14	0.196	0.322	0.518	0.77	14
200×200	0.06	0.1	0.14	0.23	0.37	0.55	12
Mass of 1 m of bar	0.006	0.01	0.014	0.023	0.037	0.055	—
Tolerance, kg	±0.0005	±0.0008	±0.001	±0.001	±0.0015	±0.002	—

EQUIVALENT REPLACEMENT OF STEEL MESH

Steel mesh: Ø	Mass per m², kg	GFRP mesh: Ø	Mass per m², kg
3	1	2	0.12
4	1.8	2.5	0.2
5	2.8	3	0.28
6	3.5	4	0.46
7	4.2	5	0.74



ELEMENTS

BENT AND AUXILIARY COMPOSITE ELEMENTS

ENGINEERED CONFIGURATIONS FOR FASTER INSTALLATION

BENT ELEMENTS

DESCRIPTION

Bent Elements is a unified range of prefabricated composite products comprising bent elements, composite dowels, rebar spacers and holders. Configurations are selected to suit project requirements and enable fast, accurate installation.

The use of ready-made products reduces the amount of work on the construction site, simplifies the assembly of reinforcement cages and reduces the likelihood of errors during installation. The dimensions, geometry and composition of the kit are consistent with the requirements of a specific engineering project and installation conditions.

ADDITIONAL INFORMATION

- Shapes: O-, U- and L-shaped.
- Standard diameters: 4–16 mm.
- Manufactured to customer drawings in the specified dimensions and lengths.
- Used in three-dimensional reinforcement cages, at structural corners and ends, at beam-to-wall and beam-to-pile junctions, and in the upper parts of foundations and columns.
- Used in reinforcement cages for foundations, beams, floor slabs, vertical columns, walls, plinths, corners and basements, as well as in long precast concrete elements.

KEY BENEFITS	AVAILABLE CONFIGURATIONS	TYPICAL APPLICATIONS
✓ Project-Ready Supply ✓ Accurate Geometry ✓ Faster Installation ✓ Corrosion Free ✓ Lightweight ✓ Reduced Labour Time ✓ Consistent Specifications ✓ Custom Configuration Available	◎ L & U Elements ◎ Closed Stirrups ◎ Corner Elements ◎ Hooks ◎ Composite Dowels ◎ Rebar Spacers, Holders & Custom Shapes	◉ Foundations ◉ Columns ◉ Beams ◉ Bridge Structures ◉ Retaining Walls ◉ Precast Concrete ◉ Marine Structures ◉ Industrial Construction

COMPOSITE DOWELS

DESCRIPTION

IMARA COMPOSITES composite dowels are lightweight, high-strength products with excellent durability and resistance to corrosion and chemicals. The smooth round bars comprise longitudinally aligned continuous glass fibres impregnated with polyester or epoxy resin and are manufactured by pultrusion.

- Diameter: up to 50 mm.
- Bar length: made to customer specification.
- Applications: road slabs, electrical and dielectric components, oil production, plant and greenhouse supports, artificial reservoirs and swimming pools.

TECHNICAL HIGHLIGHTS

Physical and Mechanical Property	Value
Density, kg/m³	1 950–2 150
Tensile, compressive and flexural strength, MPa, minimum	1 100
Tensile modulus, MPa, minimum	45 000
Dielectric strength along the fibres at 50 Hz, MV/m, minimum	4.5
Dielectric strength after boiling, kV	12
Thermal conductivity, W/(m·K)	0.46–0.50

COMPOSITE WALL TIES & REBAR SPACERS

COMPOSITE WALL TIES

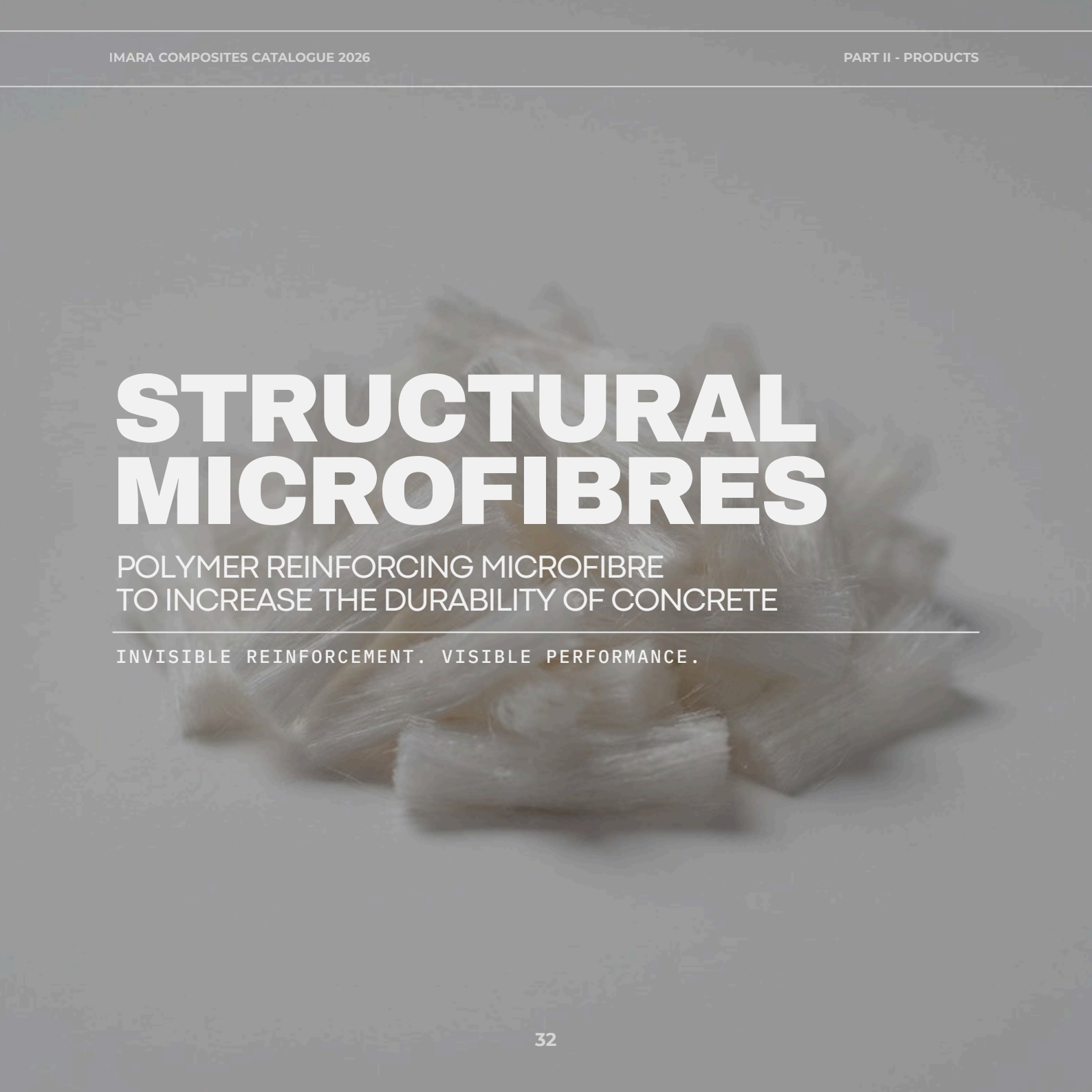
IMARA COMPOSITES composite wall ties are used in multi-leaf masonry walls to connect the inner leaf to the facing layer through thermal insulation, or to connect facing masonry to a load-bearing wall. They are round, ribbed GFRP rods and can be coated with quartz sand either over their full length or at the ends.

- Diameter: 4–32 mm; length and finish to customer specification.
- Improve wall thermal performance and reduce thermal bridging.
- Help prevent wall failure and improve structural strength.
- Resistant to the alkaline environment of concrete.
- Provide a substantially longer service life than steel rebar.
- Electrically non-conductive and non-magnetic.
- Used in cast-in-place reinforced concrete, three-leaf masonry and sandwich walls.

REBAR SPACERS AND HOLDERS

Rebar spacers and holders maintain reinforcement in its designed position inside the formwork and prevent it from reaching the concrete surface. They provide the specified concrete cover, reduce corrosion risk and improve structural reliability, strength and durability.

- Types: chair, spacer, wheel, stand, cube and others.
- Material: high-strength flexible polyethylene resistant to corrosion, oxidation and temperature fluctuations.
- Typical quantity: approximately 4–10 spacers per 1 m^2 of concrete; the exact quantity depends on the applicable standards and required concrete cover.



STRUCTURAL MICROFIBRES

POLYMER REINFORCING MICROFIBRE TO INCREASE THE DURABILITY OF CONCRETE

INVISIBLE REINFORCEMENT. VISIBLE PERFORMANCE.

POLYPROPYLENE MACROFIBRE & MICROFIBRE

DESCRIPTION

Structural Microfibres are synthetic reinforcing fibres designed for uniform dispersion throughout the concrete mix and improved service performance.

The addition of fibre helps control plastic shrinkage, reduces the likelihood of microcracks and increases the durability of concrete structures without changing placement technology.The material is compatible with most types of concrete mixtures and is used in both industrial and civil construction.

PERFORMANCE BENEFITS

- Improves the flexural and tensile strength of concrete.
- Reduces mix flow.
- Improves crack resistance and durability.
- Improves the finished surface appearance.
- Improves impact resistance and flexibility.
- Extends service life and improves abrasion resistance.
- Reduces water absorption and material segregation.
- Improves the freeze–thaw and fire resistance of concrete.

TYPICAL APPLICATIONS

- Industrial floors, warehouses, logistics centres and factories.
- Underground and above-ground multi-storey car parks.
- Cement-concrete roads and airport runways.
- Bridges, tunnels, mine shafts and railways.
- Dams, piles and water channels.
- Military and defensive structures.
- Overpasses, pedestrian paths and paving slabs.

POLYPROPYLENE MACROFIBRE & MICROFIBRE

DOSAGE

- Typical dosage: 1.0–2.0 kg/m³ of concrete, depending on the application.
- From 1.0 kg/m³ — as supplementary reinforcement in place of bar reinforcement.
- From 1.5 kg/m³ — as a replacement for reinforcing mesh.
- From 2.0 to 7.0 kg/m³ — as a replacement for bar reinforcement

APPLICATION REQUIREMENTS

The fibre may be introduced before the water is added or into the finished mix. Add it gradually to a truck mixer and mix at high speed for approximately one minute. At a batching plant, macrofibre may be added with the aggregate and sand before the water. Do not add water to ready-mixed concrete to accommodate a higher fibre dosage.

Use high-frequency vibrating screeds where practicable. Excessive compaction with immersion vibrators may draw fibres to the surface. Protruding fibres may be carefully melted with a torch in accordance with safety procedures; where a finish will subsequently be applied, they may be retained to improve adhesion.

STORAGE AND PACKAGING

- Store in a dry place. Shelf life: three years from the date of manufacture.
- Packaging: 1 kg, 5 kg, 15 kg and 100 kg bags.
- The product is stated to be certified in accordance with European Union standards.

POLYPROPYLENE MACROFIBRE & MICROFIBRE

Physical and Mechanical Property	Value
Material	Polypropylene
Equivalent diameter, mm	0.1–2.5
Length, mm	25–55
Density, g/cm³	0.91 ± 0.01
Resistance to acids / alkalis	High
Tensile strength, MPa	Minimum 80
Modulus of elasticity, MPa	Minimum 1,000
Elongation at break, %	Minimum 17
Electrical conductivity	Low
Thermal conductivity	Low
Water absorption	None
Melting point, °C	Minimum 160
Form	Crimped / embossed fibre

COMPOSITE UTILITY POLES

FOR ENERGY AND TELECOMMUNICATIONS INFRASTRUCTURE

BUILT FOR RELIABLE INFRASTRUCTURE

COMPOSITE UTILITY POLES

DESCRIPTION

IMARA COMPOSITES composite poles and mast structures are intended for projects where low weight, corrosion resistance, efficient installation and reduced maintenance costs are essential. Product configuration - including height, load-bearing capacity, connection details, flange base, embedded components and supply scope - is defined by the project requirements and the client's technical specification.

Engineering development includes structural optimisation, selection of performance parameters for the operating environment, and coordination of the pole with equipment, foundations, cable routes and adjacent systems.

PRODUCT RANGE

Group	Typical products	Applications
Municipal infrastructure poles	Lighting poles; traffic-sign and traffic-light poles; CCTV poles; railway signal poles.	Streets, roads, public spaces and transport hubs.
Industrial poles	Lighting poles for filling stations, fuel storage terminals, extraction sites and industrial facilities; roadside poles; flagpoles.	Industrial plants and facilities for extraction, storage and fuelling.
Power distribution poles	6-10 kV, 35 kV and 110-220 kV overhead line poles.	Power distribution and transmission infrastructure.
Multipurpose masts	Multipurpose poles and masts from 10 to 40 m high; structures for telecommunications, lighting and equipment mounting.	Communications, telecommunications, lighting and monitoring.
Cable and associated infrastructure	Cable channels and trays; drainage solutions; drainage pipes; barrier gates and street furniture elements.	Municipal networks, roads, railways, metro systems, tunnels and bridges.

COMPOSITE UTILITY POLES

KEY ADVANTAGES

- **Low weight:** according to the source presentation, composite products may be up to four times lighter than comparable steel products.
- **Corrosion resistance**: the material is not subject to electrochemical corrosion and is designed for service in aggressive environments.
- **Wide operating temperature range:** from -70 °C to +115 °C and above, depending on the material formulation and the validated configuration.
- **Lower logistics and installation costs** due to low weight and a high degree of factory prefabrication.
- **Lower operating costs**: routine anti-corrosion maintenance typical of metal poles is not required.
- **High impact safety** compared with conventional materials in the example provided by the source data.
- The design can be selected to **meet project fire-safety requirements**; the applicable classification must be confirmed by documentation for the selected structure.
- Power, control and communication lines can be **routed together in confined spaces**, subject to the approved project requirements.

COMPOSITE UTILITY POLES

COMPARATIVE PERFORMANCE

Parameter	Composite pole	Reinforced-concrete pole	Polygonal steel pole	Wooden pole
Service life	50-70 years	30 years	30 years	10-20 years
Strength, kN·m	70	30	50	40
Weight, kg	110-185	1135-2100	470	290 (without pole stub)
Units per vehicle, pole length 10-11 m	92-100 units	10-22 units	22 units	17 poles with stubs
Environmental resistance	High	High	High when galvanised	Low
Minimum operating temperature	down to -70 °C and below	down to -53 °C	down to -40 °C	down to -50 °C
Impact safety	High	Low	Low	Low

COMPOSITE UTILITY POLES

Installation and Operation

FLANGE-BASE INSTALLATION

A flange-base solution enables installation on a prepared foundation with an anchor-bolt assembly and mechanical fastening without complex lifting equipment, subject to the weight and dimensions of the selected structure.

- Crew size stated in the source data: 3 people.
- Indicative installation time stated in the source data: 20 minutes.
- The actual installation method is defined by the approved method statement, foundation design, pole equipment and site conditions.

OPERATION

- Reduced need for anti-corrosion maintenance;
- Resistance to moisture, de-icing agents and aggressive environments, within the verified performance limits of the material;
- Inspection of connections, flanges, embedded components and installed equipment in accordance with the facility maintenance schedule;
- Replacement or upgrade of mounted equipment without modifying the main pole, where permitted by the engineered configuration.

Product Spread

Line	IMARA Model / Original Model	Application	Height (m)	Base Ø (mm)	Top Ø (mm)	Weight (kg)	Max Top Load (kg)	Installation
Street Lighting	**IMARA Street 4** **Original: OKKF 122-4000-K90**	Street Lighting	4	122	90	19.3	80	Flange mounted
Street Lighting	**IMARA Street 4 Plus** **Original: OKF SP1 122/40-4000**	Street Lighting	4	122	40	19.5	80	Flange mounted
Street Lighting	**IMARA Street 6** **Original: OK SP1 140/100-6000**	Street Lighting	6	140	100	27.3	80	Direct buried
Street Lighting	**IMARA Street 7** **Original: OKKF SP1 140/122-7000**	Street Lighting	7	140	122	48.6	80	Flange mounted
Street Lighting	**IMARA Street 8** **Original: OKKF SP 140/122-8**	Street Lighting	8	146	122	53.2	80	Flange mounted
Street Lighting	**IMARA Street 8 HD** **Original: OKKF SP1 150/140-8**	Street Lighting / Heavy Duty	8	150	140	53.4	230	Direct buried
Street Lighting	**IMARA Street 9 HD** **Original: OKKF SP1 200/150-9**	Street Lighting / Heavy Duty	9	200	150	123.8	400	Flange mounted
Utility & Power	**IMARA Utility 9** **Original: OK-150/9**	Utility	9	150	150	66.8	230	Direct buried
Utility & Power	**IMARA Power 9.5** **Original: OKP SP1 200/150-9500/400**	Power Distribution	9.5	200	150	133	400	Direct buried
Utility & Power	**IMARA Power 10 HD** **Original: OKP SP1 250/200-10.1**	Power Distribution / Heavy Duty	10.1	250	200	82	255	Direct buried
Utility & Power	**IMARA Power 11** **Original: OKP SP1 200/150-11000/400**	Power Distribution	11	200	150	154	400	Direct buried
Utility & Power	**IMARA Utility 10 HD** **Original: OK SP1 300/250-10.1**	Utility / Heavy Duty	10.1	300	250	304	700	Direct buried
Utility & Power	**IMARA Utility 11 HD** **Original: OKKF SP1 300/250-11**	Utility / Heavy Duty	11	300	250	331	700	Flange mounted

ENGINEERING & QUALITY

ENGINEERING SOLUTION STARTS WITH A TASK

OUR ENGINEERING & QUALITY PRINCIPLES

Modern composite solutions require not only high-quality materials, but also an accurate understanding of the design problem.

Each IMARA COMPOSITES solution is formed based on site technical requirements, product performance verification and delivery configuration approval.

A systems engineering approach and delivery control ensure that materials meet design requirements and build confidence in solutions designed to last.

ENGINEERING APPROACH

Analysis of project requirements and operating conditions to define the engineering direction.

SOLUTION DESIGN

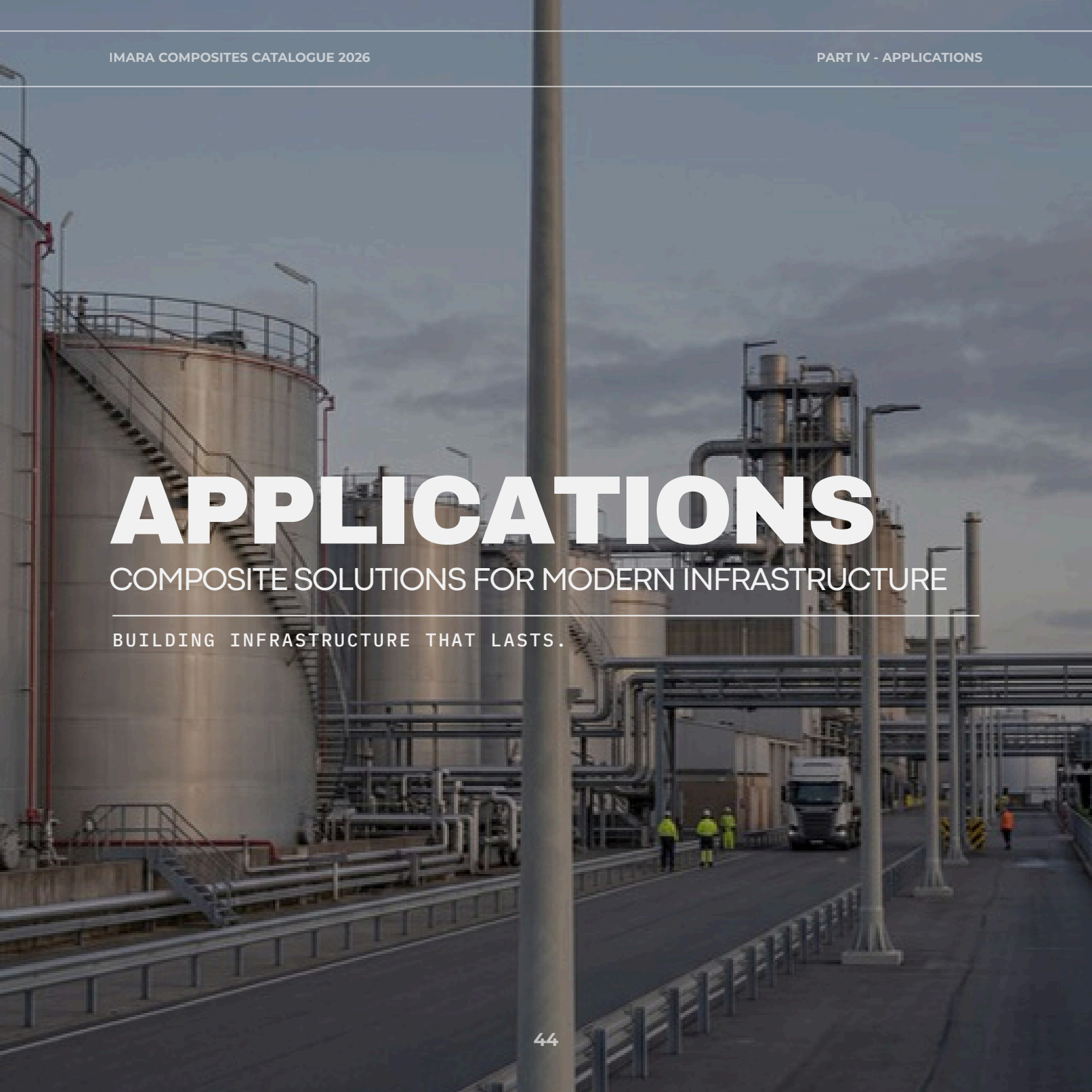
Selection of product type, configuration and technical parameters for the specific project task.

DELIVERY AND QUALITY CONTROL

Specification approval, logistics coordination, incoming quality checks and delivery control.

TESTS AND DOCUMENTATION

Verification of material characteristics, test records and supporting technical documentation.



APPLICATIONS

COMPOSITE SOLUTIONS FOR MODERN INFRASTRUCTURE

BUILDING INFRASTRUCTURE THAT LASTS.

APPLICATIONS

Modern infrastructure places increasingly high demands on building materials. Increasing the service life of structures, reducing operating costs and resistance to environmental influences are becoming determining factors in the design of new facilities.

Composite materials open up new opportunities for the construction of roads, bridges, industrial plants, energy and marine infrastructure. Thanks to their high strength, corrosion resistance and minimal maintenance requirements, they allow you to create structures designed for long-term and reliable operation.

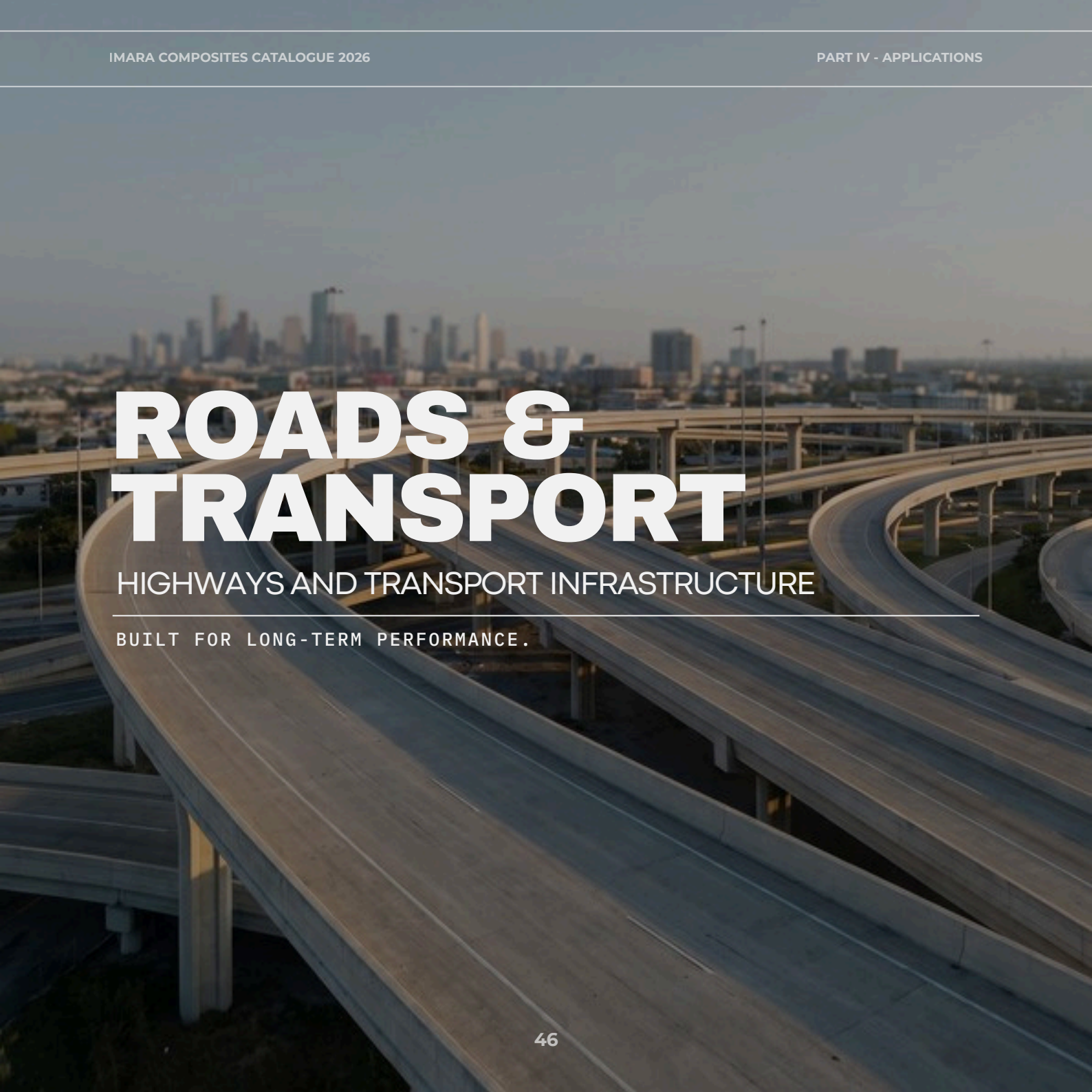
IMARA COMPOSITES solutions are used in projects where engineering efficiency and durability are key requirements.

APPLICATION SECTORS

- Roads & Transport Infrastructure
- Bridges & Civil Structures
- Marine Infrastructure
- Industrial Facilities
- Energy & Utilities
- Residential & Commercial Buildings

SECTION INTRODUCTION

Each industry has its own requirements for building materials. The following sections show how IMARA COMPOSITES solutions help create longer lasting, safer and more efficient infrastructure.



ROADS & TRANSPORT

HIGHWAYS AND TRANSPORT INFRASTRUCTURE

BUILT FOR LONG-TERM PERFORMANCE.

INTRO

Modern transport infrastructure must withstand heavy operating loads, environmental stress and long service life without significantly increasing maintenance costs.

IMARA COMPOSITES composite materials can increase the durability of reinforced concrete structures, reduce the impact of corrosion and ensure stable operation of infrastructure facilities throughout their entire life cycle.

The use of modern composite solutions contributes to the creation of more sustainable, safe and cost-effective transport infrastructure.

MAIN APPLICATIONS

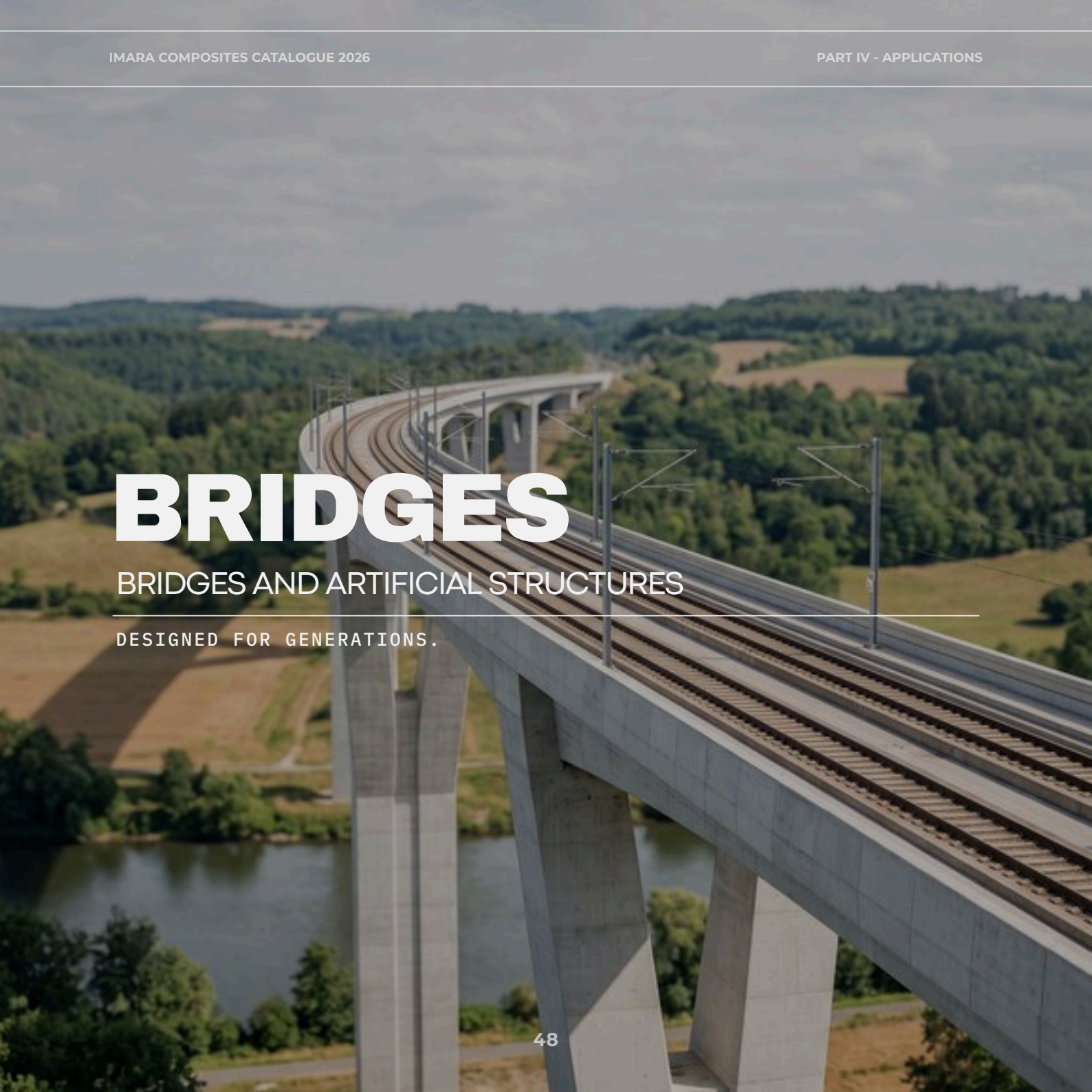
- Highways
- Interchanges and overpasses
- Road slabs
- Retaining walls
- Culverts
- Drainage system
- Barrier structures
- Transport terminals

IMARA SOLUTIONS USED

- GFRP Rebar
- Bent Elements
- GFRP Mesh
- Structural Microfibres

ENGINEERING BENEFITS

- No corrosion in reinforced concrete
- Extending the service life of structures
- Reduced maintenance costs
- High resistance to environmental influences
- Compatible with modern infrastructure projects



BRIDGES

BRIDGES AND ARTIFICIAL STRUCTURES

DESIGNED FOR GENERATIONS.

INTRO

Bridge structures are among the most critical infrastructure facilities, where the durability of materials directly affects safety, operating costs and the overall life cycle of the structure.

IMARA COMPOSITES composite materials can minimize the effect of corrosion on reinforced concrete elements, increase the durability of structures and reduce the need for major repairs during the entire service life.

The use of modern composite solutions contributes to the creation of bridge structures designed for stable operation in difficult climatic and operational conditions.

MAIN APPLICATIONS

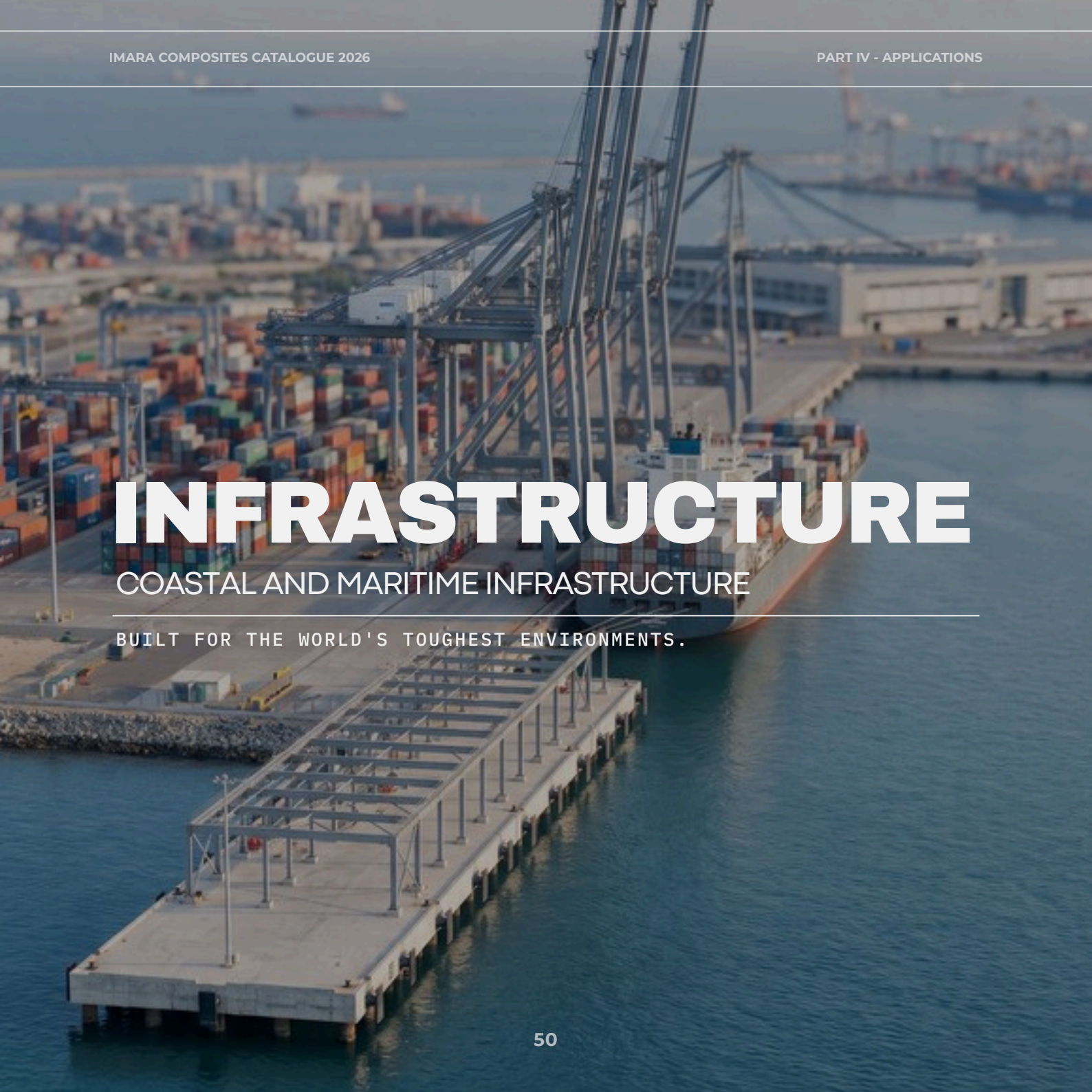
- Road bridges
- Railway bridges
- Overpasses
- Viaducts
- Pedestrian bridges
- Retaining structures
- Support elements
- Engineering structures

IMARA SOLUTIONS USED

- GFRP Rebar
- Bent Elements
- GFRP Mesh
- Structural Microfibres

ENGINEERING BENEFITS

- High corrosion resistance
- Extending the service life of structures
- Reduced maintenance costs
- Increased operational reliability
- An effective solution for modern infrastructure projects



INFRASTRUCTURE

COASTAL AND MARITIME INFRASTRUCTURE

BUILT FOR THE WORLD'S TOUGHEST ENVIRONMENTS.

INTRO

Offshore infrastructure is one of the most challenging environments for construction materials. Constant exposure to salt water, high humidity and aggressive environments significantly accelerates the corrosion processes of traditional reinforcement and increases the cost of maintaining facilities.

IMARA COMPOSITES materials offer excellent resistance to corrosive marine environments and enable structures designed for long-term service without loss of performance.

The use of modern composite solutions helps to increase the service life of infrastructure, reduce repair costs and increase the overall reliability of structures in coastal regions.

MAIN APPLICATIONS

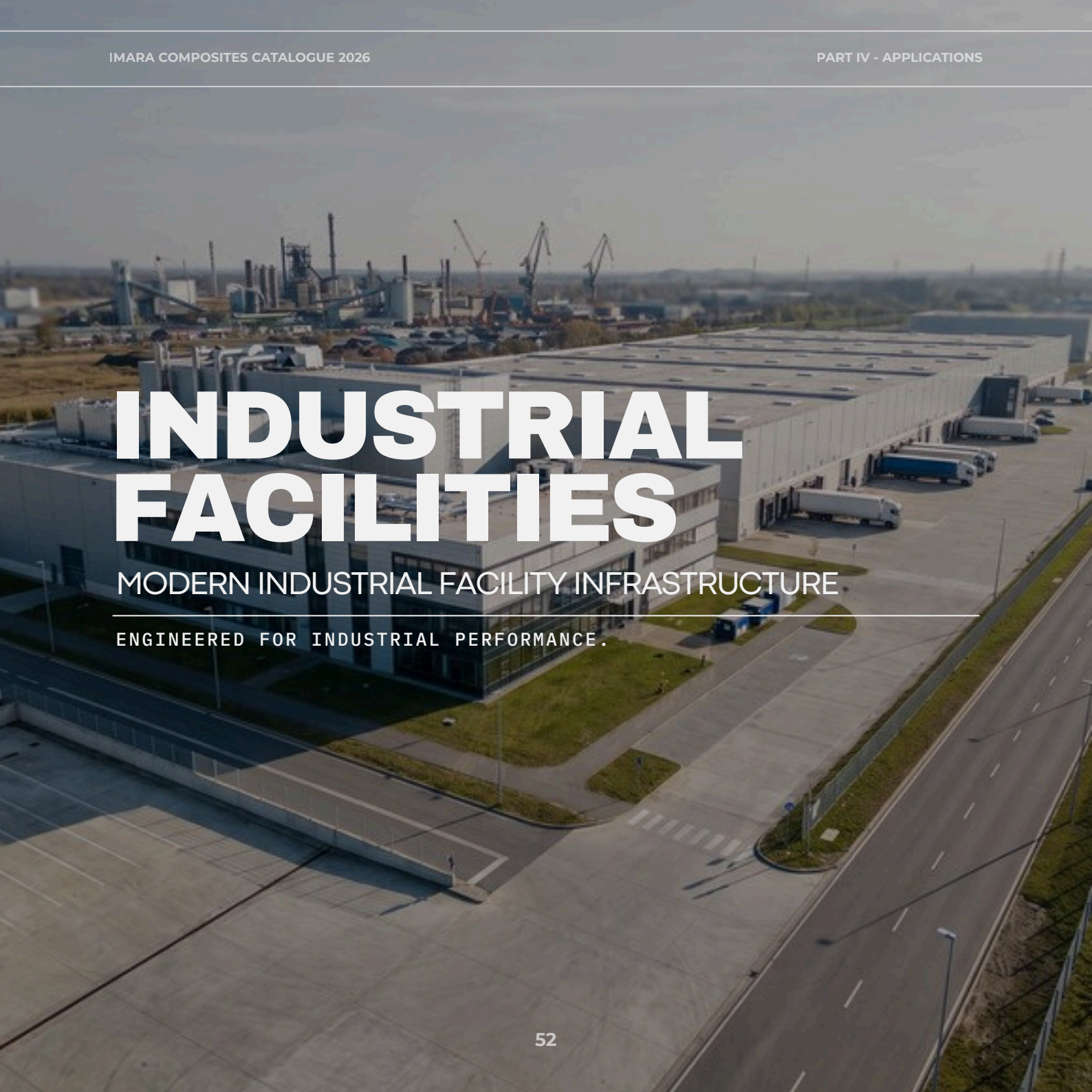
- Sea ports
- Moorings and piers
- Bank protection structures
- Embankments
- Wave protective structures
- Fishing ports
- Drainage structures
- Coastal transport infrastructure

IMARA SOLUTIONS USED

- GFRP Rebar
- Bent Elements
- GFRP Mesh
- Structural Microfibres

ENGINEERING BENEFITS

- High resistance to marine environments
- No corrosion of reinforcement
- Extending the service life of concrete structures
- Reduced maintenance costs
- Optimal solution for coastal infrastructure



INDUSTRIAL FACILITIES

MODERN INDUSTRIAL FACILITY INFRASTRUCTURE

ENGINEERED FOR INDUSTRIAL PERFORMANCE.

INTRO

Industrial facilities are daily exposed to intense mechanical loads, heavy equipment, vibrations and adverse operating conditions. For such projects, materials that ensure structural stability and minimal maintenance requirements are especially important.

IMARA COMPOSITES composite solutions make it possible to increase the durability of reinforced concrete elements, increase the service life of industrial structures and reduce the risks associated with corrosion of reinforcement in an aggressive industrial environment.

The use of modern composite materials contributes to the construction of facilities designed for many years of operation while maintaining high structural reliability.

MAIN APPLICATIONS

- Manufacturing plants
- Logistics complexes
- Warehouse terminals
- Industrial floors
- Equipment foundations
- Treatment plants
- Tanks
- Production sites

IMARA SOLUTIONS USED

- GFRP Rebar
- Bent Elements
- GFRP Mesh
- Structural Microfibres

ENGINEERING BENEFITS

- High durability of structures
- Resistance to aggressive industrial environments
- Reduced maintenance costs
- Increased operational reliability
- Effective operation of structures throughout the entire life cycle of the facility

ENERGY & UTILITIES

ENERGY AND PUBLIC INFRASTRUCTURE

RELIABLE INFRASTRUCTURE. EVERY DAY.

INTRO

Energy and utility infrastructure is the basis for the sustainable functioning of modern cities, industrial enterprises and transport systems. For such facilities, materials that can maintain performance characteristics for decades with a minimum amount of maintenance are especially important.

IMARA COMPOSITES composite solutions provide high durability of reinforced concrete structures and engineering structures, resistance to moisture, aggressive environments and climatic factors. This improves the reliability of critical assets and reduces total operating costs throughout the entire life cycle.

Modern composite materials are becoming an effective basis for the construction of a new generation of engineering infrastructure.

MAIN APPLICATIONS

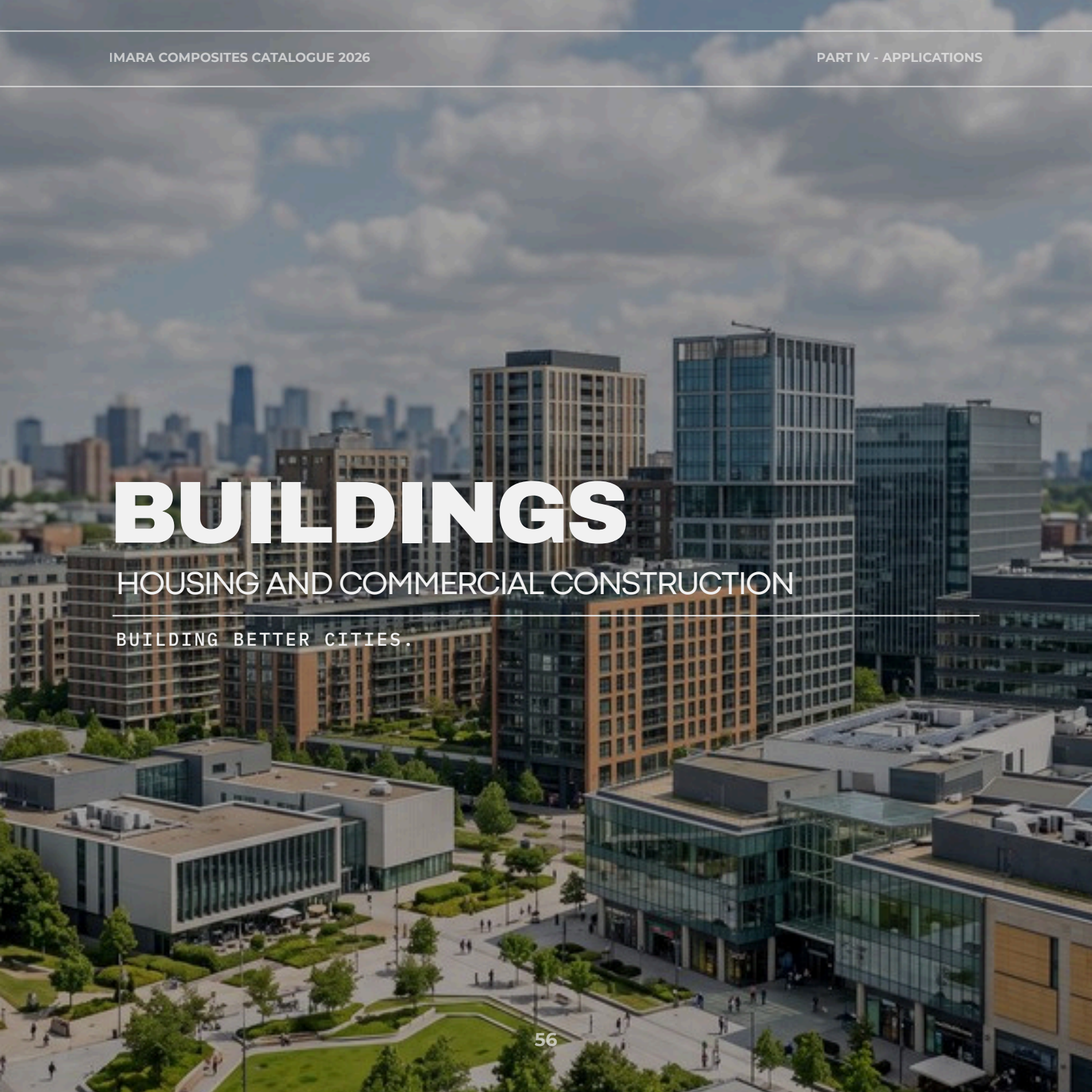
- Power transmission poles
- Electrical substations
- Cable channels
- Drainage systems
- Waterworks
- Sewage infrastructure
- Pumping stations
- Utilities facilities

IMARA SOLUTIONS USED

- Composite Utility Poles
- GFRP Rebar
- Bent Elements
- GFRP Mesh
- Structural Microfibres

ENGINEERING BENEFITS

- Durability of engineering structures
- Resistance to moisture and aggressive environments
- No corrosion of reinforcement
- Reduced operating costs
- Reliable operation of critical infrastructure facilities



BUILDINGS

HOUSING AND COMMERCIAL CONSTRUCTION

BUILDING BETTER CITIES.

INTRO

Modern buildings must meet high requirements for durability, safety and operational efficiency. The choice of building materials has a direct impact on the service life of structures, the amount of maintenance and the total cost of ownership of the facility.

IMARA COMPOSITES composite solutions make it possible to increase the durability of reinforced concrete elements, eliminate the risks associated with corrosion of reinforcement, and ensure stable operation of structures in various climatic conditions.

Combining strength, environmental resistance and long service life, composite materials are becoming an effective solution for the next generation of residential, commercial and public buildings.

MAIN APPLICATIONS

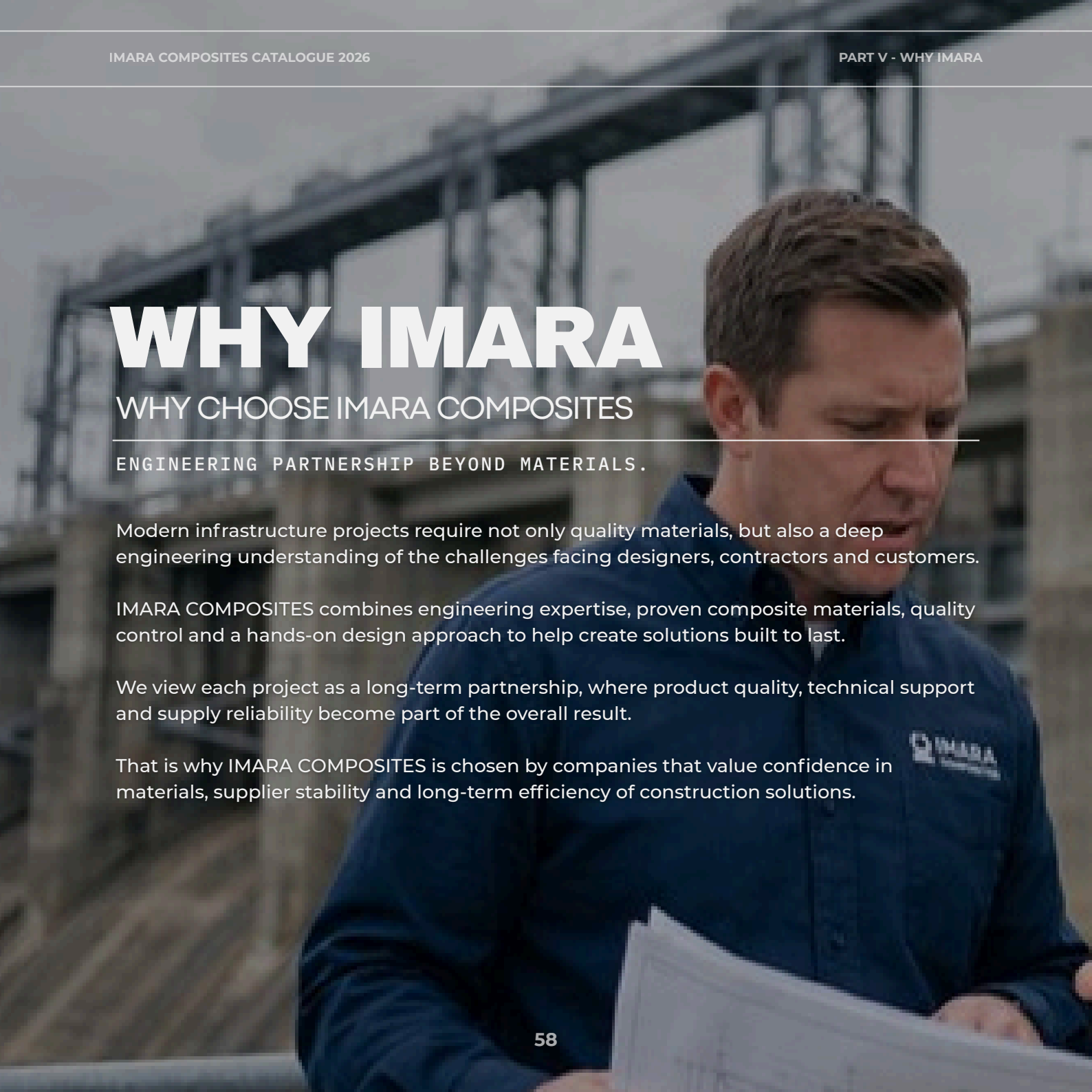
- Residential complexes
- Commercial buildings
- Business centres
- Shopping complexes
- Parking lots
- Foundations
- Floor slabs
- Architectural concrete structures

IMARA SOLUTIONS USED

- GFRP Rebar
- Bent Elements
- GFRP Mesh
- Structural Microfibres

ENGINEERING BENEFITS

- Increased durability of structures
- No corrosion of reinforcement
- Reduced building maintenance costs
- Reliable operation in various climatic conditions
- Modern approach to the construction of durable facilities



WHY IMARA

WHY CHOOSE IMARA COMPOSITES

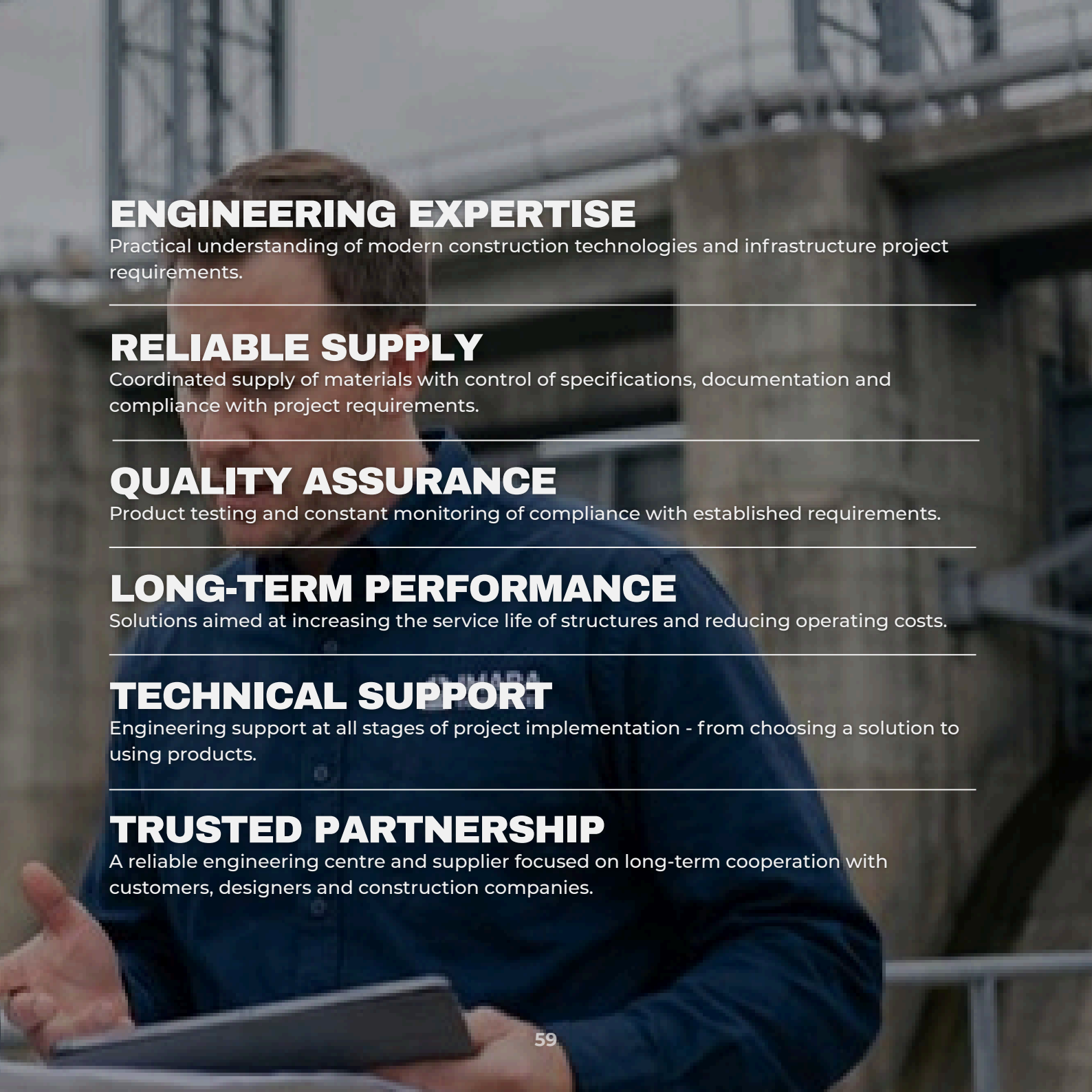
ENGINEERING PARTNERSHIP BEYOND MATERIALS.

Modern infrastructure projects require not only quality materials, but also a deep engineering understanding of the challenges facing designers, contractors and customers.

IMARA COMPOSITES combines engineering expertise, proven composite materials, quality control and a hands-on design approach to help create solutions built to last.

We view each project as a long-term partnership, where product quality, technical support and supply reliability become part of the overall result.

That is why IMARA COMPOSITES is chosen by companies that value confidence in materials, supplier stability and long-term efficiency of construction solutions.



ENGINEERING EXPERTISE

Practical understanding of modern construction technologies and infrastructure project requirements.

RELIABLE SUPPLY

Coordinated supply of materials with control of specifications, documentation and compliance with project requirements.

QUALITY ASSURANCE

Product testing and constant monitoring of compliance with established requirements.

LONG-TERM PERFORMANCE

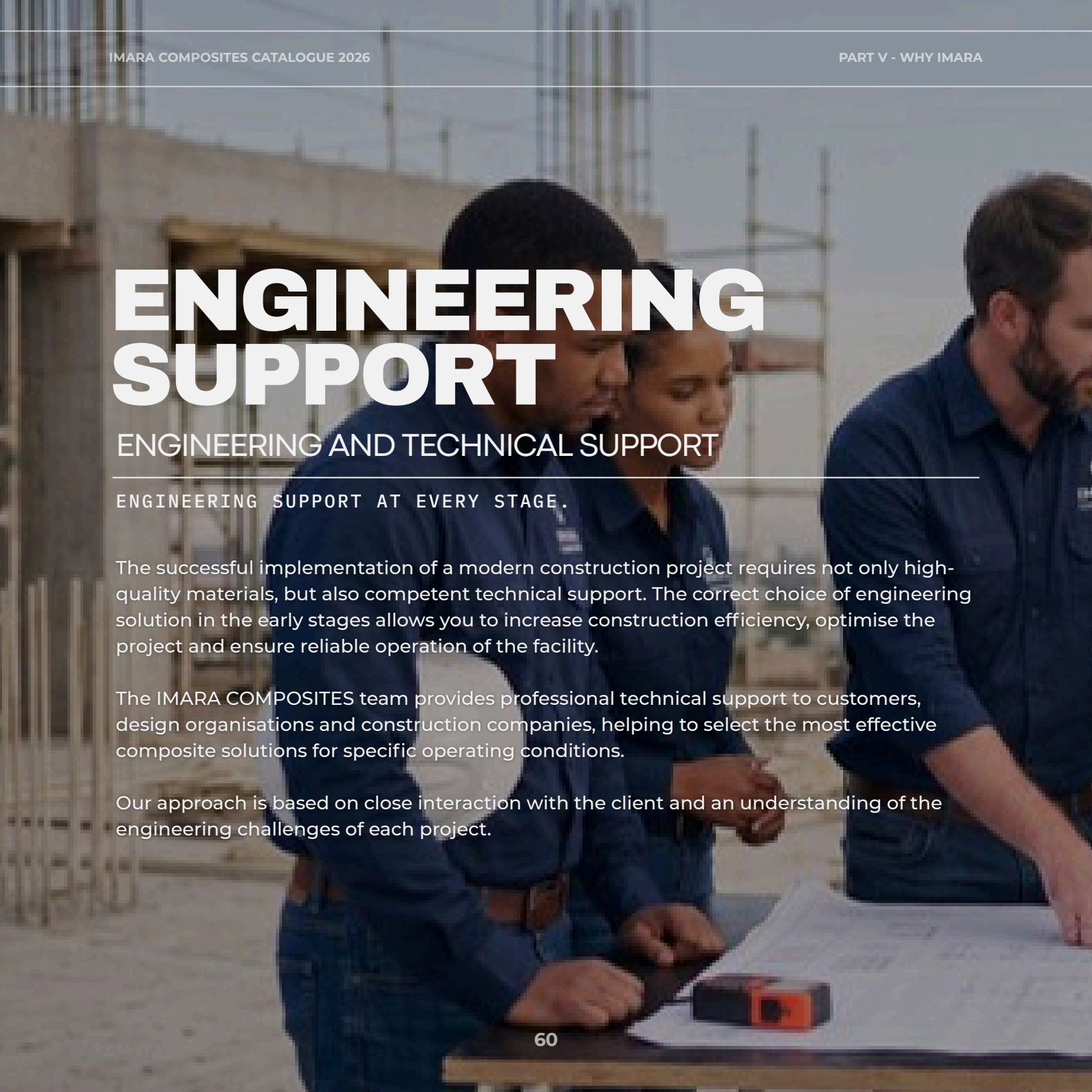
Solutions aimed at increasing the service life of structures and reducing operating costs.

TECHNICAL SUPPORT

Engineering support at all stages of project implementation - from choosing a solution to using products.

TRUSTED PARTNERSHIP

A reliable engineering centre and supplier focused on long-term cooperation with customers, designers and construction companies.



ENGINEERING SUPPORT

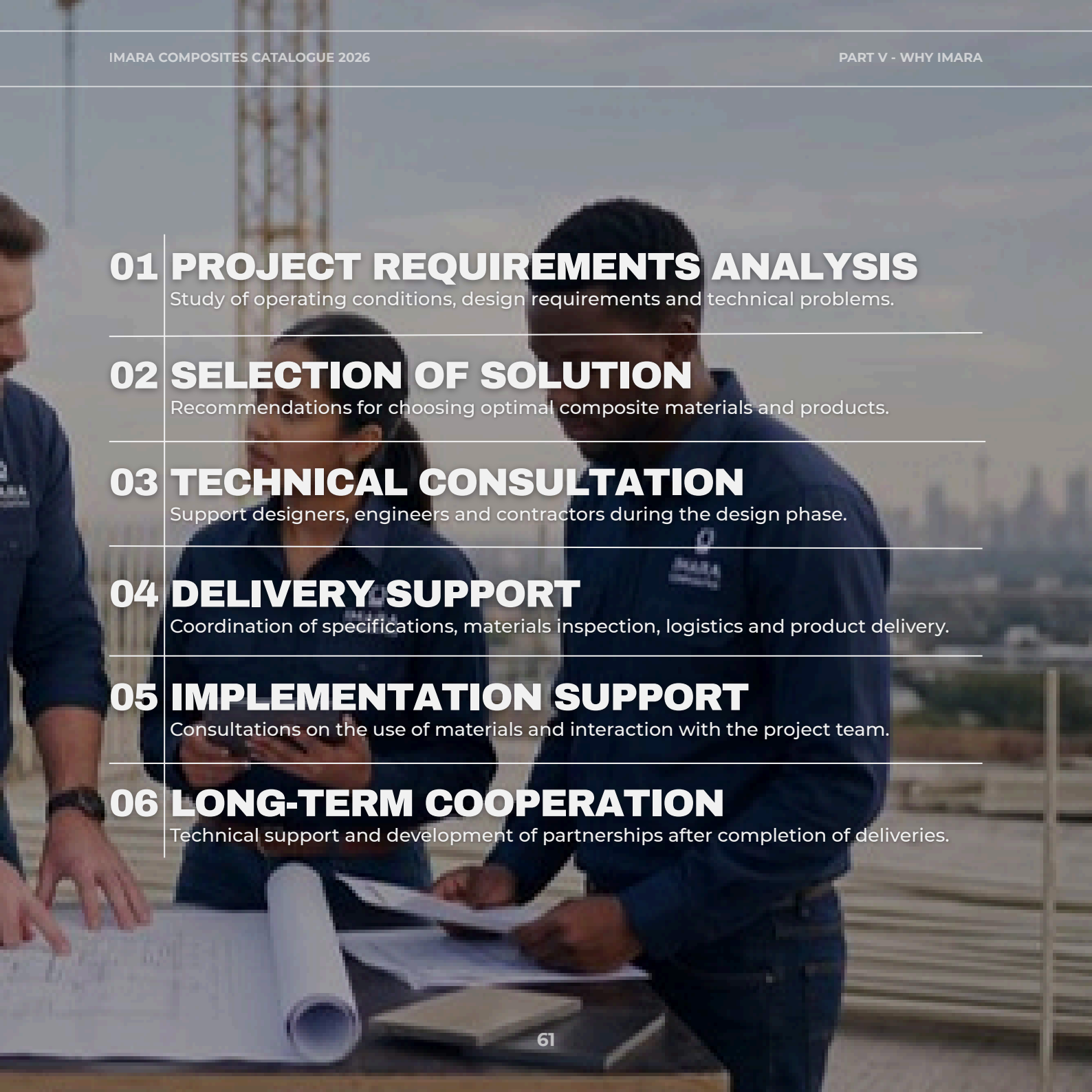
ENGINEERING AND TECHNICAL SUPPORT

ENGINEERING SUPPORT AT EVERY STAGE.

The successful implementation of a modern construction project requires not only high-quality materials, but also competent technical support. The correct choice of engineering solution in the early stages allows you to increase construction efficiency, optimise the project and ensure reliable operation of the facility.

The IMARA COMPOSITES team provides professional technical support to customers, design organisations and construction companies, helping to select the most effective composite solutions for specific operating conditions.

Our approach is based on close interaction with the client and an understanding of the engineering challenges of each project.



01 PROJECT REQUIREMENTS ANALYSIS
Study of operating conditions, design requirements and technical problems.

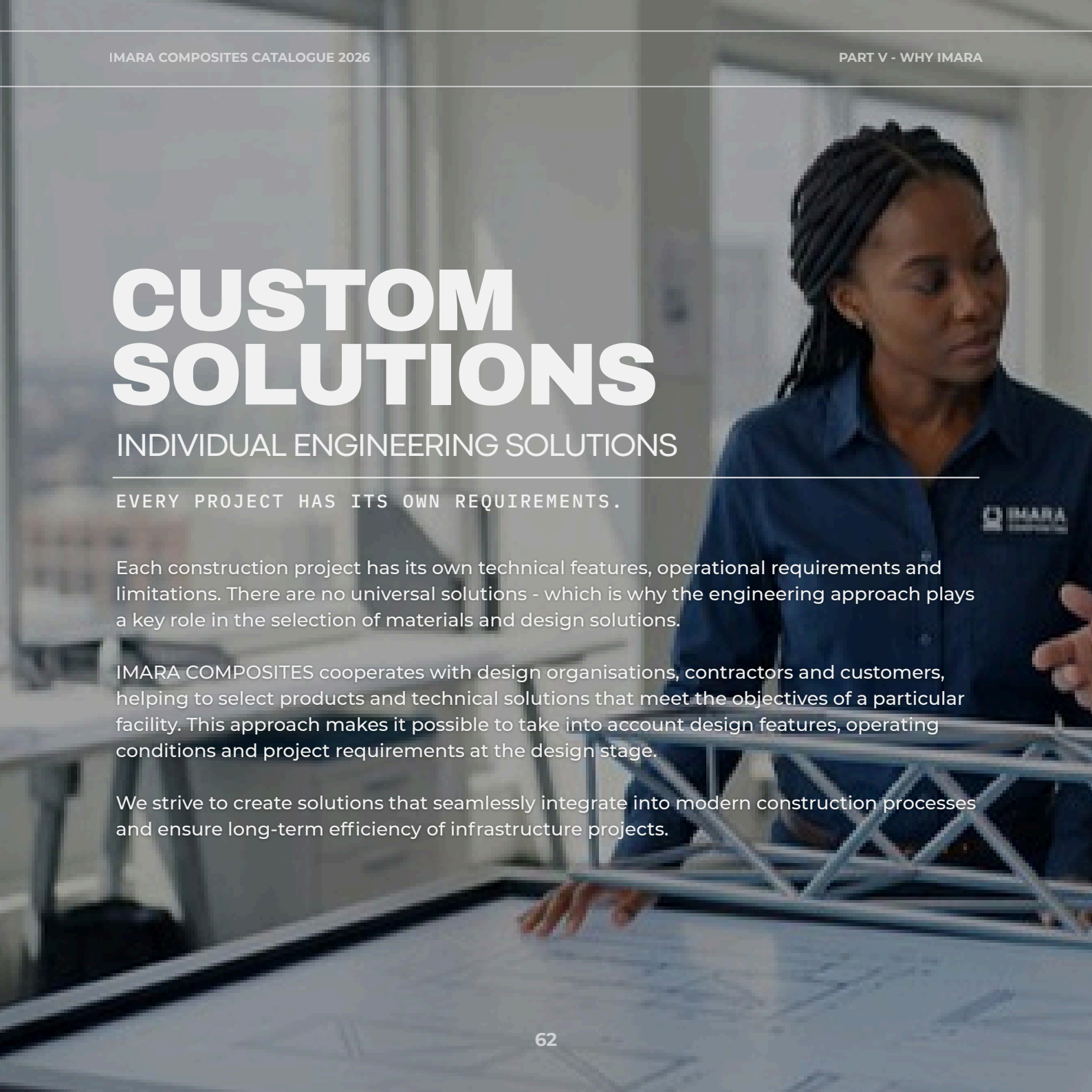
02 SELECTION OF SOLUTION
Recommendations for choosing optimal composite materials and products.

03 TECHNICAL CONSULTATION
Support designers, engineers and contractors during the design phase.

04 DELIVERY SUPPORT
Coordination of specifications, materials inspection, logistics and product delivery.

05 IMPLEMENTATION SUPPORT
Consultations on the use of materials and interaction with the project team.

06 LONG-TERM COOPERATION
Technical support and development of partnerships after completion of deliveries.



CUSTOM SOLUTIONS

INDIVIDUAL ENGINEERING SOLUTIONS

EVERY PROJECT HAS ITS OWN REQUIREMENTS.

Each construction project has its own technical features, operational requirements and limitations. There are no universal solutions - which is why the engineering approach plays a key role in the selection of materials and design solutions.

IMARA COMPOSITES cooperates with design organisations, contractors and customers, helping to select products and technical solutions that meet the objectives of a particular facility. This approach makes it possible to take into account design features, operating conditions and project requirements at the design stage.

We strive to create solutions that seamlessly integrate into modern construction processes and ensure long-term efficiency of infrastructure projects.

PROJECT CONSULTATIONS

Selection of solutions taking into account the technical requirements of a particular facility.

PRODUCT ADAPTATION

Selection of optimal products and configurations for various design tasks.

ENGINEERING COOPERATION

Working with designers, consultants and construction companies at all stages of the project.

SUPPORT FOR COMPLEX PROJECTS

Technical support for facilities with non-standard operating conditions and increased requirements for durability.

INTEGRATED APPROACH

Bringing together engineering expertise, material sourcing capabilities and technical support into one project.

RESULT ORIENTED

Development of solutions aimed at increasing construction efficiency and increasing the service life of structures.

LOOKING AHEAD

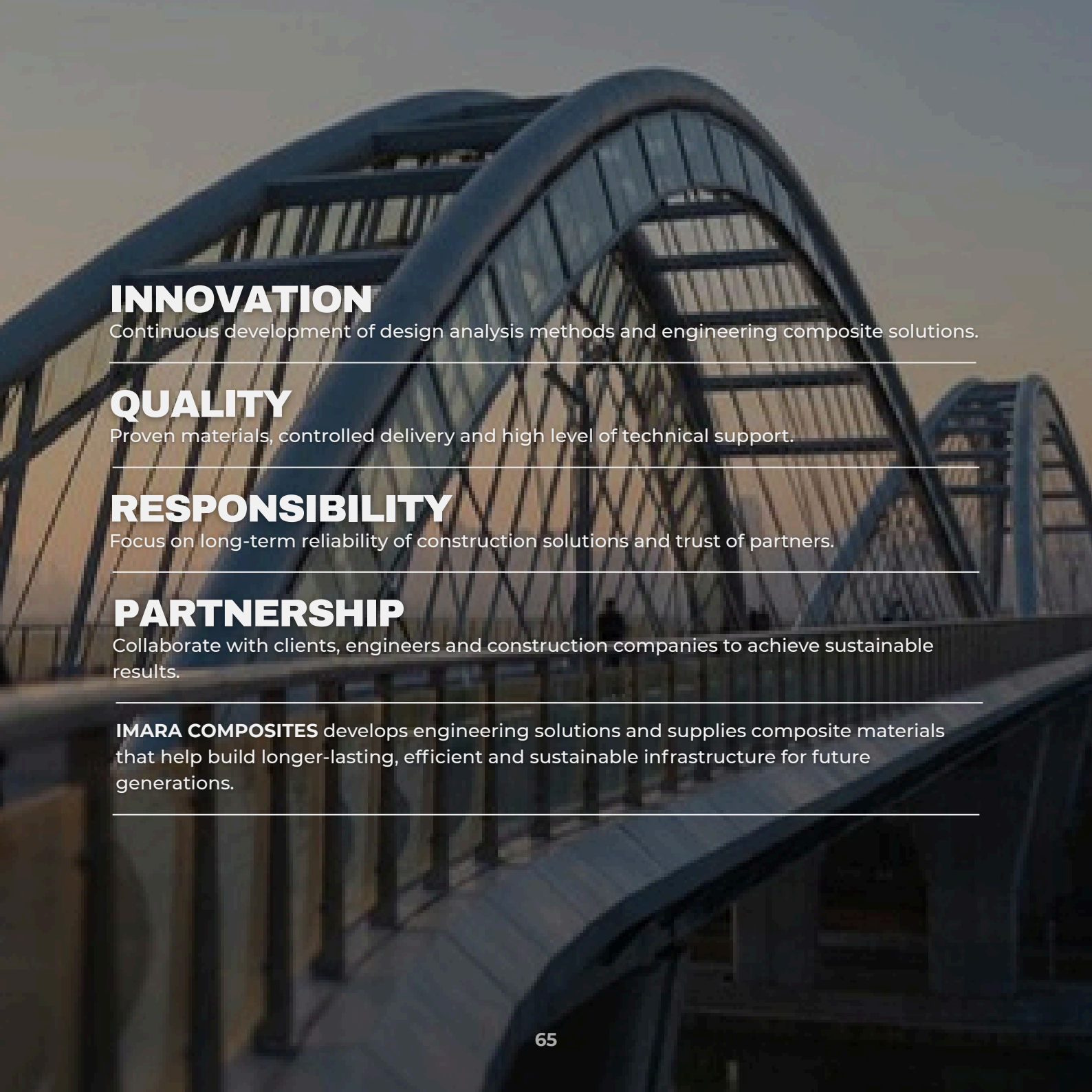
BUILDING THE FUTURE TOGETHER

BUILDING TOMORROW. STARTING TODAY.

The construction industry continues to evolve, placing ever greater demands on the durability, efficiency and sustainability of engineering solutions. Composite materials are becoming an important part of this transformation, opening up new possibilities for creating modern infrastructure.

IMARA COMPOSITES strives to be a reliable partner in this process, combining engineering expertise, proven materials, supply chain and customer responsibility. We are convinced that long-term value is created through the quality of solutions, a professional approach and the continuous development of competencies.

We continue to strengthen our engineering expertise, refine project-ready solutions and expand the use of composite materials to advance modern construction and create infrastructure built for the future.



INNOVATION

Continuous development of design analysis methods and engineering composite solutions.

QUALITY

Proven materials, controlled delivery and high level of technical support.

RESPONSIBILITY

Focus on long-term reliability of construction solutions and trust of partners.

PARTNERSHIP

Collaborate with clients, engineers and construction companies to achieve sustainable results.

IMARA COMPOSITES develops engineering solutions and supplies composite materials that help build longer-lasting, efficient and sustainable infrastructure for future generations.

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