FIBERWELL PVT. LTD.

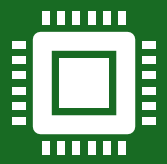
"Unleashing Strength: The fiber Revolution"

Explore the Future of Construction: Macro & Micro fibers Unveiled!

- Uncover the game-changing potential of macro fibers in construction. From increased structural resilience to unprecedented durability, discover how our macro fiber solutions redefine industry standards.

🔍 Why Fibers?

🌈 *Enhanced Performance:* Unmatched strength and durability for your construction projects.



🔄 *Cost-Effective:* Reduce maintenance costs and extend the lifespan of structures.

🌐 *Adaptable:* Tailored solutions for a variety of construction applications.

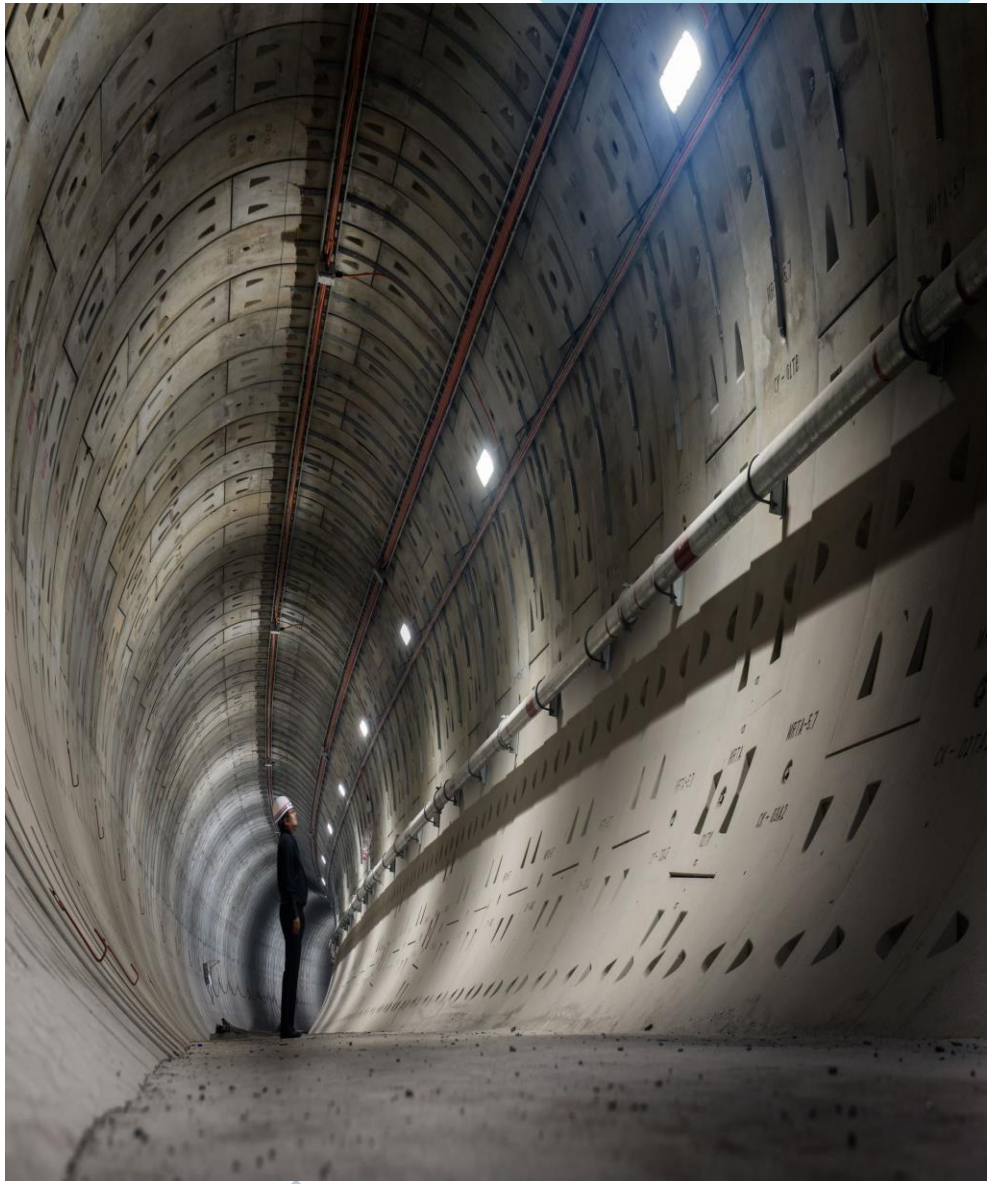
APPLICATION OF MACRO & MICRO FIBERS

Residential and Commercial Construction:

- Macro & Micro fibers find applications in various construction projects, ran ging from residential buildi ngs to commercial structures. They offer a cost-effective solution to improve the durability and longevity of concrete elements.

TUNNEL CUMINNING

In underground construction, such as tunnels and
mines, macro fibers can be added to con crete to enhance its ability to withstand the challenges
posed by the surrounding environment, including ground movement and dynamic loads



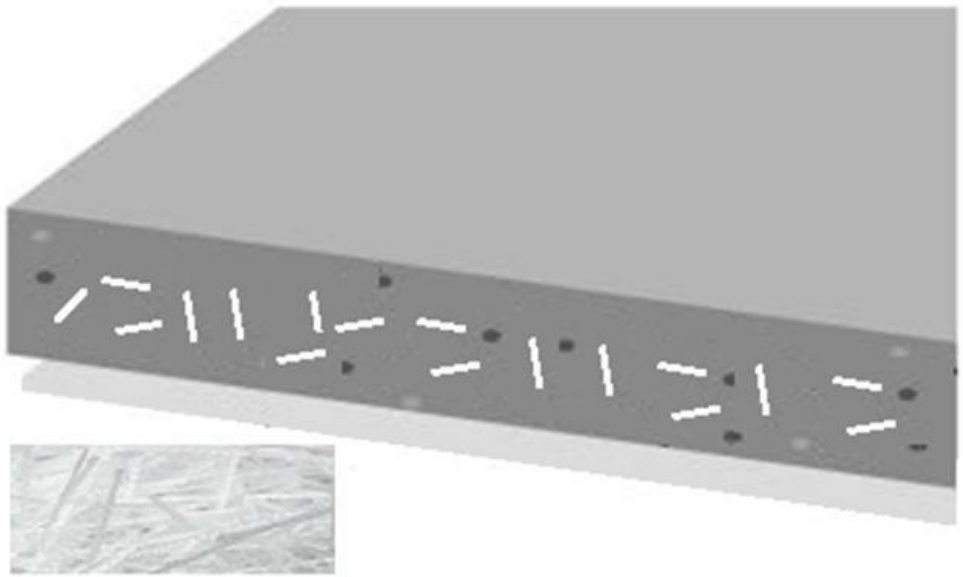
Precast Concrete Products:

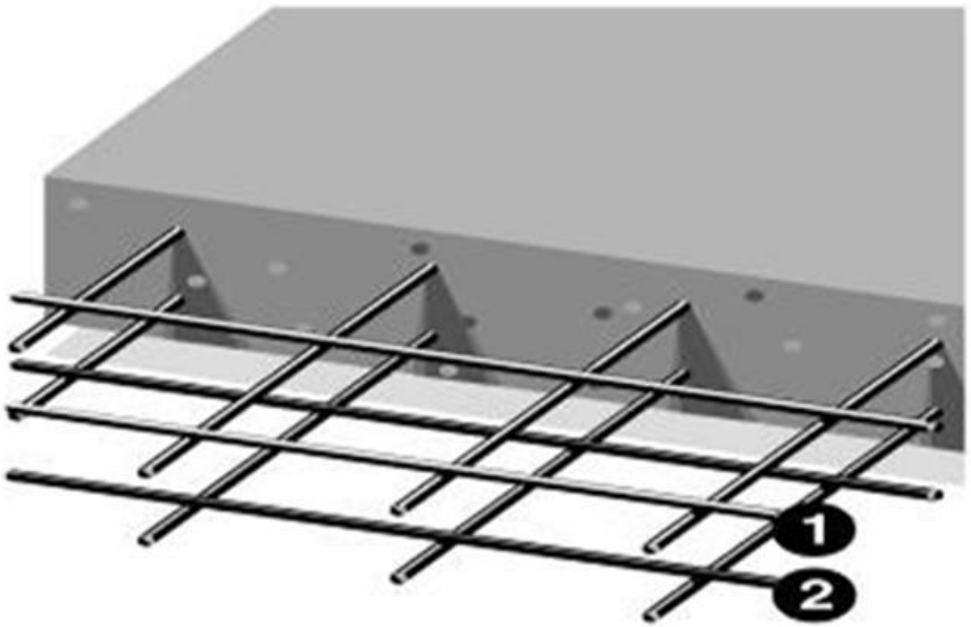
• The use of macro & micro fibers is common in the production of precast concrete products, such as panels, pipes, and blocks. This ensures that the precast elements maintain their structural inte grity during handling, transportation, and installation.

Bridge Construction:

- Macro fibers contribute to the structural performance of bridges, where the concrete elements are exposed to a range of environmental conditions and loads. The fibers help mitigate the effects of temperature changes and dynamic forces.

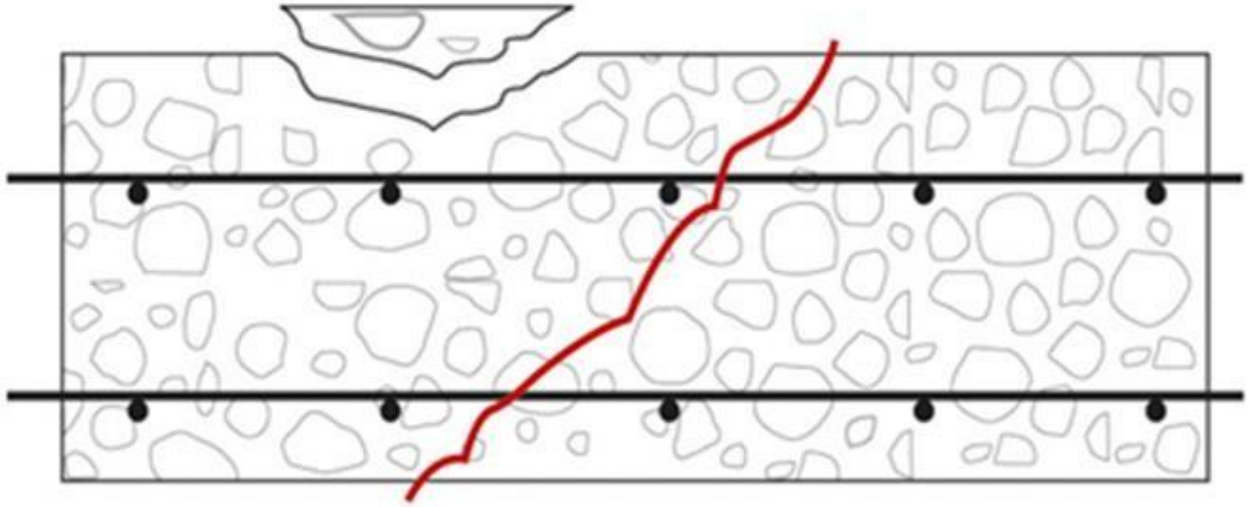
MACRO FIBRE FLOOR COMPARED WITH MESH





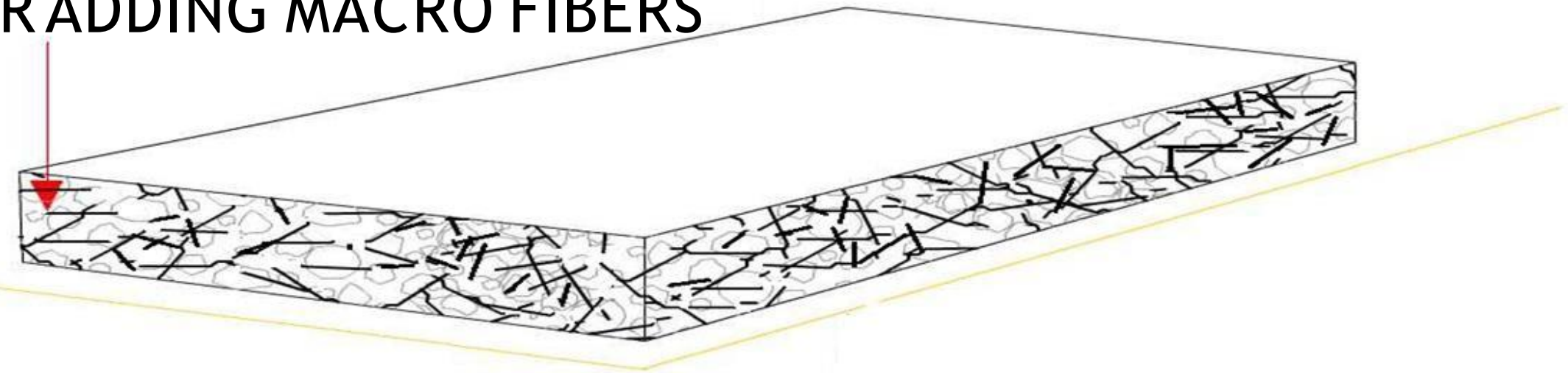
- MAKE A THINNER & BETTER FLOOR
- FASTER EXECUTION

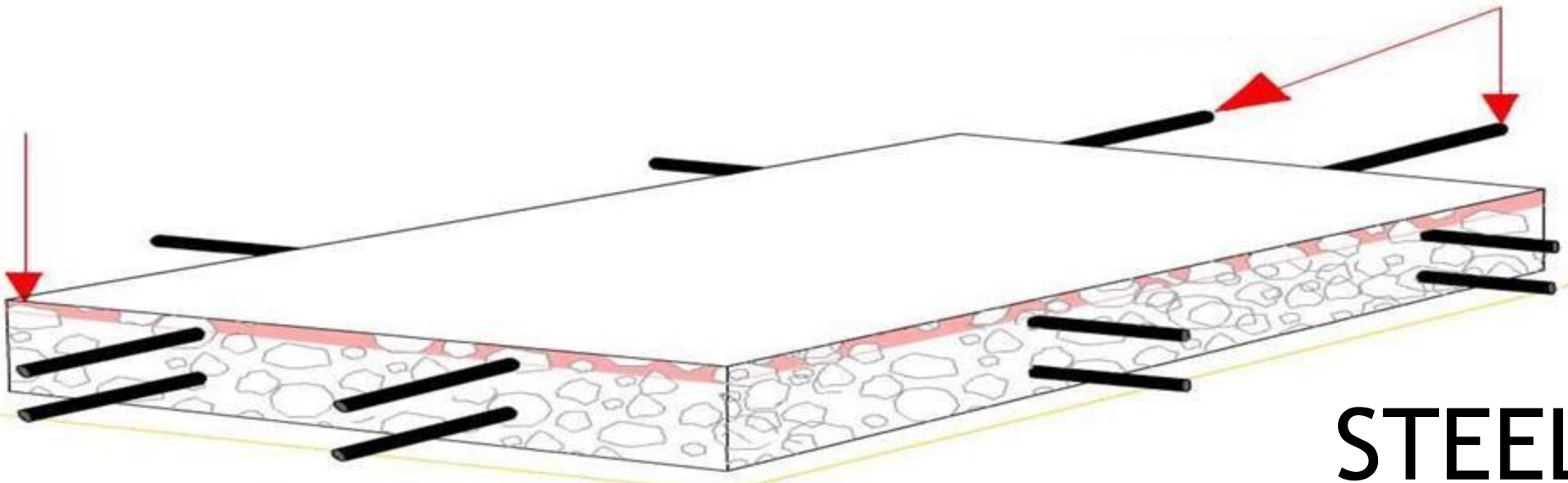
UNREINFORCED LAYER



REINFORCED LAYER WITH MACRO FIBERS

AFTER ADDING MACRO FIBERS





STEEL MESH

• *Advantages of FRC*

- High modulus of elasticity for effective long-term reinforcement, even in the hardened concrete.
- Does not rust nor corrode and requires no minimum cover.
- Ideal aspect ratio (i.e. relationship between Fiber diameter and length) which makes them excellent for early-age performance.
- Easily placed, Cast, Sprayed and less labour intensive than placing rebar.
- Greater retained toughness in conventional concrete mixes.
- Higher flexural strength, depending on addition rate.
- Can be made into thin sheets or irregular shapes.
- FRC possesses enough plasticity to go under large deformation once the peak load has been reached.

(a) Placement of concrete specimen

(b) Splitting failure of speci

- Macro fibers added with concrete
- Only concrete

Sustainability at Its Core:

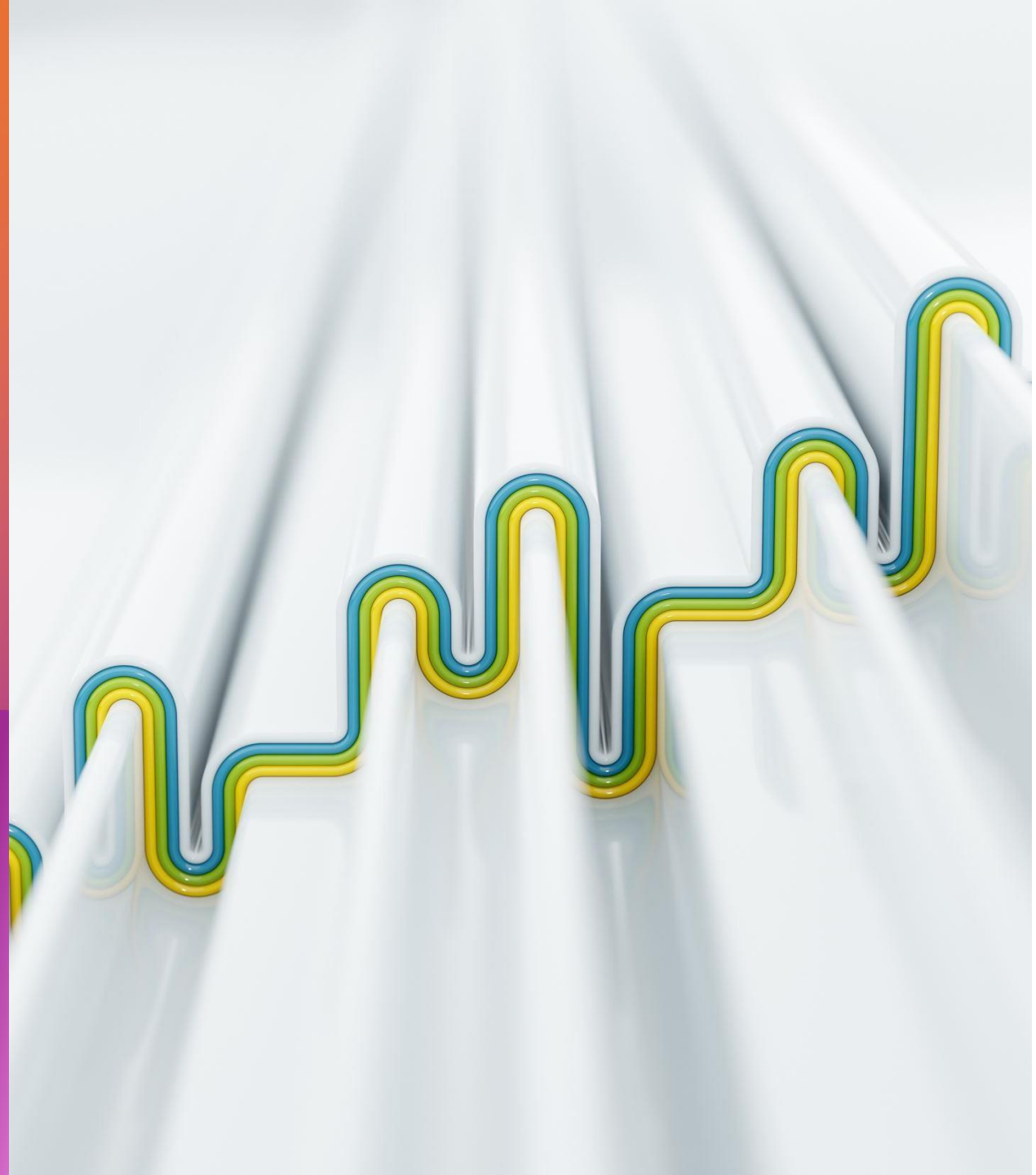
- 🌎 *Eco-Friendly Solutions:* Discover how our macro fiber products contribute to sustainable construction practices, reducing environmental impact without compromising strength.

CONTRIBUTION OF MACRO FIBERS.

- The use of macro fiber concrete reinforcement has been increasing in global construction for the past 15 years. As market experience and confidence has increased so too has the number of available standards and guidelines.

The Science Behind the Strength:

- Dive into the technical brilliance of macro fibers. Understand the intricate details of how our innovative technology reinforces concrete, making it more resilient to various stresses.



Mechanical Properties of FRC

- ***Compressive Strength***
- The presence of fibers may alter the failure mode of cylinders, but the fiber effect will be minor on the improvement of compressive strength values (0 to 15 percent).

- ***Modulus of Elasticity***
- Modulus of elasticity of FRC increases slightly with an increase in the fibers content. It was found that for each 1 percent increase in fiber content by volume, there is an increase of 3 percent in the modulus of elasticity. .

- ***Flexure***
- The flexural strength was reported to be increased by 2.5 times using 4 percent fiber

- ***Splitting Tensile Strength***
- The presence of 3 percent fiber by volume was reported to increase the splitting tensile strength of mortar about 2.5 times that of the unreinforced one.

- ***Toughness***
- For FRC, toughness is about 10 to 40 times that of plain concrete.

- ***Fatigue Strength***
- The addition of fibers increases fatigue strength of about 90 percent.

- ***Impact Resistance***
- The impact strength for fibrous concrete is generally 5 to 10 times that of plain concrete depending on the volume of fiber

COST COMPARISON

Fiber	Cost Per Kg (Approx)	Typical Dosage	Rate per Cubic Meter of Concrete	Percentage Saving
Macro fiber	250	2	500	50% Saving per Cubic Meter of Concrete
Steel Fiber	100	10	1000	

COST COMPARISON

REINFORCEMENT	SIZE / QUANTITY	EXAMPLE
STEEL FIBER	15 KG Per Mtr^3	DOSAGE 15 KG Per Mtr^3 TOTAL COST : 150 Mtr^3 X 15 Kg Per Mtr^3 = 2250 2250 x 100 (Cost of Steel Fiber) = 225000/10000 = Rs. 22.50 per Ft^2
MACRO FIBER	3 KG Per Mtr^3	DOSAGE 3 KG Per Mtr^3 TOTAL COST : 150 Mtr^3 x 3 Kg Kg Per Mtr^3 = 450 450 x 250 (Cost of Macro Fiber) = 112500/10000 = Rs. 11.25 per Ft^2
	4 KG Per Mtr^3	DOSAGE 4 KG Per Mtr^3 TOTAL COST : 150 Mtr^3 x 4 Kg Kg Per Mtr^3 = 600 600 x 250 (Cost of Macro Fiber) = 150000/10000 = Rs. 15 per Ft^2

Dosages

Application	Macro Fiber 12mm	Macro Fiber 24mm	Macro Fiber 50mm	Denier
Plastering / Mortar	0.9 – 1.2	1.0 – 1.4	1.2-1.5	300-600
Industrial Flooring	1.5 – 2.0	1.8 – 2.5	2.0-3.0	600-1200
Pavements / Roads	1.5-2.5	2.0-3.0	2.5-4.0	1000-2000
Shotcrete / Tunnels	2.0-3.0	2.5-3.5	3.0-4.5	1500-3000
Precast Elements	1.0-1.8	1.20-2.0	1.5-2.5	800-1500
Structural Reinforcement	2.0-3.5	2.5-4.0	3.0-5.0	2000-6000

PROPERTY	SPECIFICATION
MATERIAL	POLYPROPLENE (PP)
LENGTH	3-12 MM
MELTING POINT	160–170°C
SPECIFIC GRAVITY	~0.91 g/cm³
COLOUR	NATURAL WHITE
DOSAGE	0.6–1.0 kg/m³

MICRO FIBERS SPECIFICATION CHART

Macro Fiber Specification Chart

Property	Specification
Material composition	Polyproplene Virgin
Length (MM)	50-55 MM
Diameter (MM)	0.89-0.98
Water absorption	Nil
Tensile strength (MPA)	5 Gpa
Modulus of Elasticity (GPA)	3-5 Gpa
Melting point (C`)	165`
Alkali Resistance	Excellent
Color	White
Dosage Rate	900 Grams to 5 Kgs per cubic.
Packaging	125 gms, 900 gms, 40Kgs and as per customer need.

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