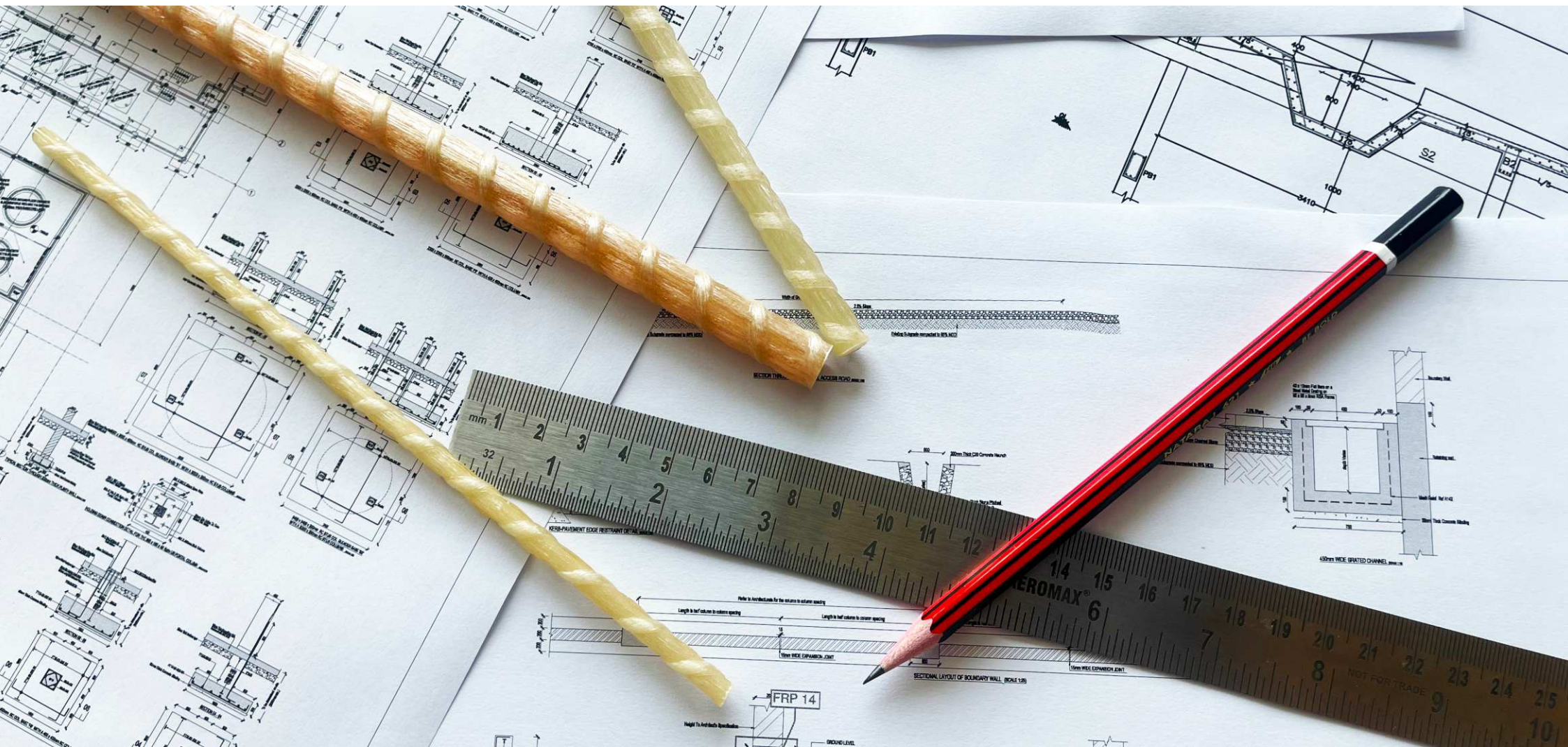


SMINComposites®



SMINBar™

SMART INNOVATION IN CONCRETE REINFORCEMENT

CERTIFIED WORLDWIDE

SMINBar™ has been made in compliance with the most important international codes and guidelines. The material has been certified and has required guidelines and codes in several European countries, Canada, US, and Japan.

- Compliance with CSA S807-10 (Canada)
- Compliance with ACI 440.6M-08(17)*
- ASTM D7957/D7957M – 22 (USA)
- Compliance with ISO 10406 (EU)

UNSURPASSED PROPERTIES

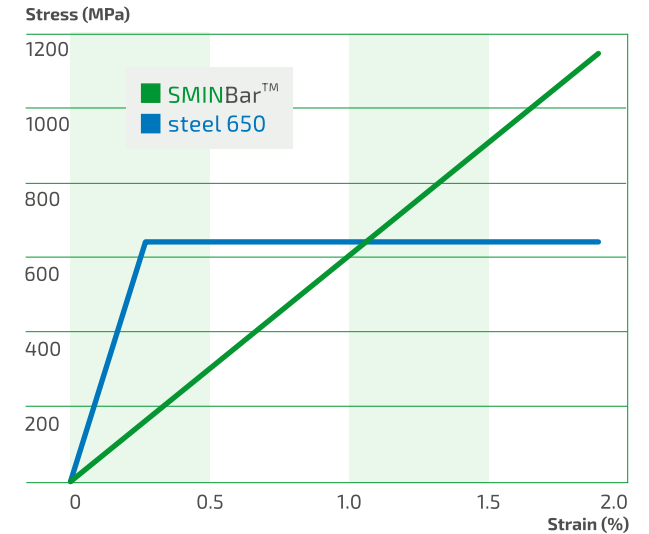
SMINBar™ is a ribbed reinforcing bar made of corrosion-resistant glass fibres that are bound by a vinylester or epoxy resin.

The high-quality raw materials, components and the unique, controlled and reproducible manufacturing process result in an outstanding material.

SMINBar™ is

- highly durable (lifespan >80 years)
- much stronger than steel (>1000MPa)
- corrosion resistant (to alkaline and sour solutions)
- not magnetic or magnetisable (radio transparent)
- not electrically conductive
- low thermal expansion and contraction (close to concrete)
- easily machinable
- significantly lighter than steel (4:1)
- cheaper than steel

Stress-strain diagram



Material	Steel	GFRP
Tensile Strength (MPa)	550-650	1000+
Shear strength (Mpa)	120	170
Bond strength (Mpa)	14	12.5
Compression ((Mpa)	500	450
Modulus of Elasticity	160-200	52+
Elongation (%)	25	2
Durability (Y)	Depends on domain	80+
Density (ton/m³)	7.8	1.9
Corrosion resistance to aggressive	Low resistance	High resistance
Ecological compatibility	High CO2 pollution during manufacturing	Eco-friendly material
Electrical conductivity	Yes	No

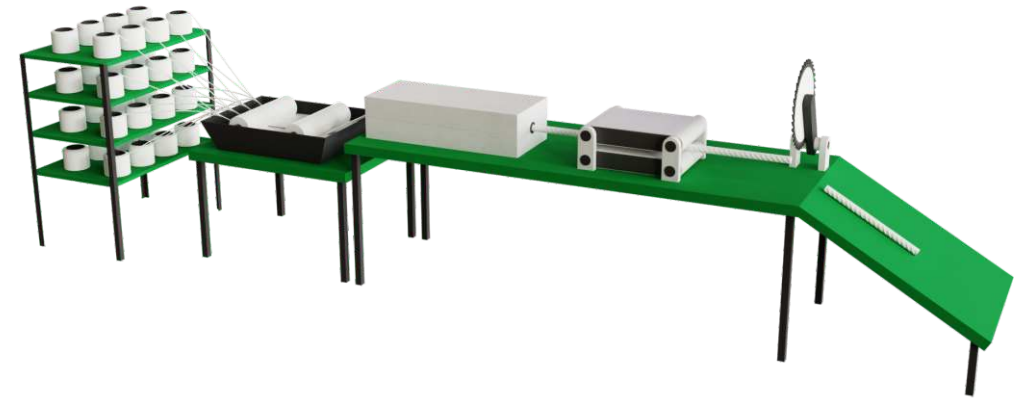
Despite its strength, steel is not the ideal solution for concrete reinforcement, especially in corrosive and electromagnetically sensitive environments, even though steel rebar has been commonly used as reinforcement in concrete constructions for centuries. SMINTech® presents advanced possibilities and unique solutions.

THE MANUFACTURING PROCESS

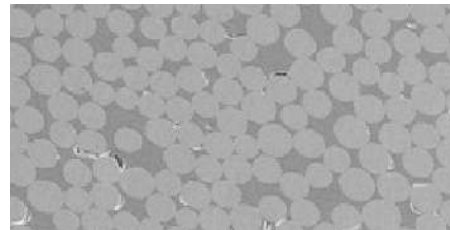
The manufacturing stages:

- high-strength glass fibers are getting impregnated with synthetic resin
- the periodic profile is applied on the surface
- high-temperature curing
- the rebar is getting chill
- cutting for a specific length
- the finished good is getting coiled for ease of transportation.

The result: a reinforcing material with unique structural, physical, and chemical characteristics.



Cross section



Longitudinal section



LONG LASTING HIGHT-STRENGTH

The high fibre content of SMINBar™ (approx. 85 % by weight) and the precise impregnation ratio results in maximum strength and stiffness of the material.

The vinyl ester or epoxy resin infuses glass or basalt roving. Every fiber is surrounded by resin. This means maximum durability in concrete (up to 80 years).

SMINBar™

Industrial buildings, flooring and RCC roads



SMINBar™ offers significant advantages in industrial zones, engineering plants, and chemical industry sites. Resistant to corrosive chemicals, composites outperform steel, ensuring longevity and minimizing maintenance costs. Their lightweight nature streamlines transportation and installation, suitable for sensitive machinery due to their non-conductive properties. Tailor-made for specific needs, composites enhance structural integrity while staying consistent in quality.

The direct cost isn't exceeding steel; the long-term savings in maintenance and downtime justify the investment. The high strength-to-weight ratio of composites is ideal for enduring heavy loads without excessive weight. In essence, composite reinforcement revolutionizes these sectors by providing corrosion resistance, durability, customization, and cost-efficiency, ultimately bolstering performance and sustainability.



SMINBar™ is non-conductive and resistant to ultra-aggressive chemical environments. It is thanks to these unique properties that SMINBar™ is ideal for

- industrial roads and passages
- heavily and lightly loaded floors of production sites
- buildings with high electric fields
- chemical industries, including concrete tanks with aggressive media
- industrial concrete structures with increased vibration, electrical, and chemical resistance requirements

REFERENCES

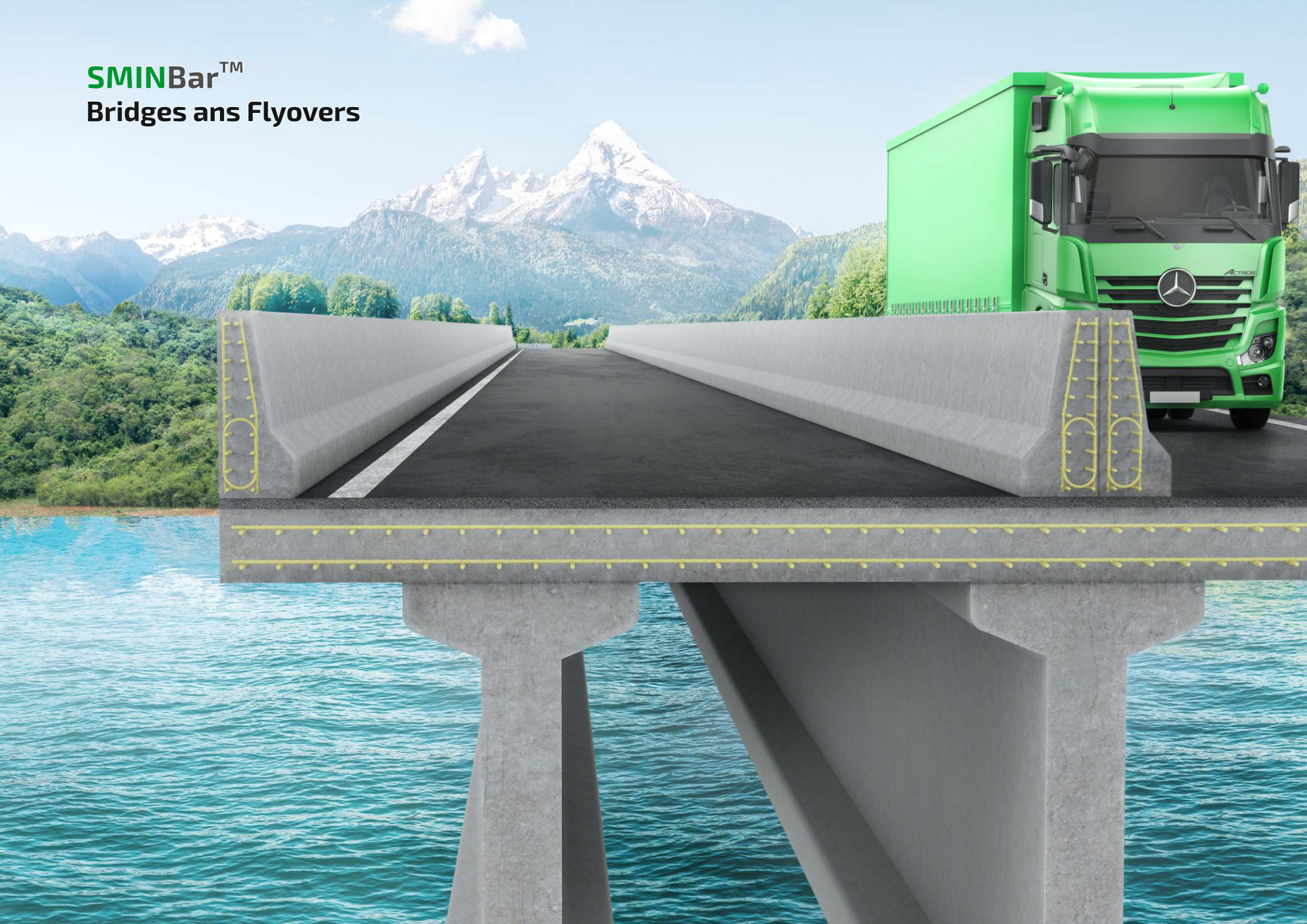
- dividing wall between transformers Isar-Amper distribution station in Munich, Germany
- transformer foundation in transformer cavern in Kaprun, Austria
- foundation at reactive power compensation plant SwissSteel Inc. in Emmenbrücke, Switzerland
- foundation in switchyard chemical plant Marl, Germany
- reinforcement around high voltage cable ducts in ceiling slab Mannheim power station, Germany

Floor slab, Qatar



Subway project, India

SMINBar™
Bridges and Flyovers



SMINBar™ revolutionizes bridges and flyover construction, providing enhanced durability, corrosion resistance, and cost-effective solutions. Composites, like fiberglass, carbon, and basalt fiber in polymer matrices, offer lightweight strength ideal for withstanding heavy loads. Their corrosion resistance is vital for bridges exposed to harsh weather conditions and moisture, reducing maintenance costs over time compared to traditional steel reinforcement. The lightweight nature of composites simplifies transportation and installation, contributing to streamlined construction processes and potential cost savings. Additionally, these materials can be tailored to meet specific project needs, ensuring optimal structural integrity and performance. In essence, composite reinforcement transforms bridge and flyover projects, offering longevity, cost efficiency, and resilient infrastructure for sustainable transportation networks.



SMINBar™ is perfect reinforcing material for

- bridge decks
- bridge caps
- barrier walls on bridges
- sound barriers
- ballasted rail slabs

REFERENCES

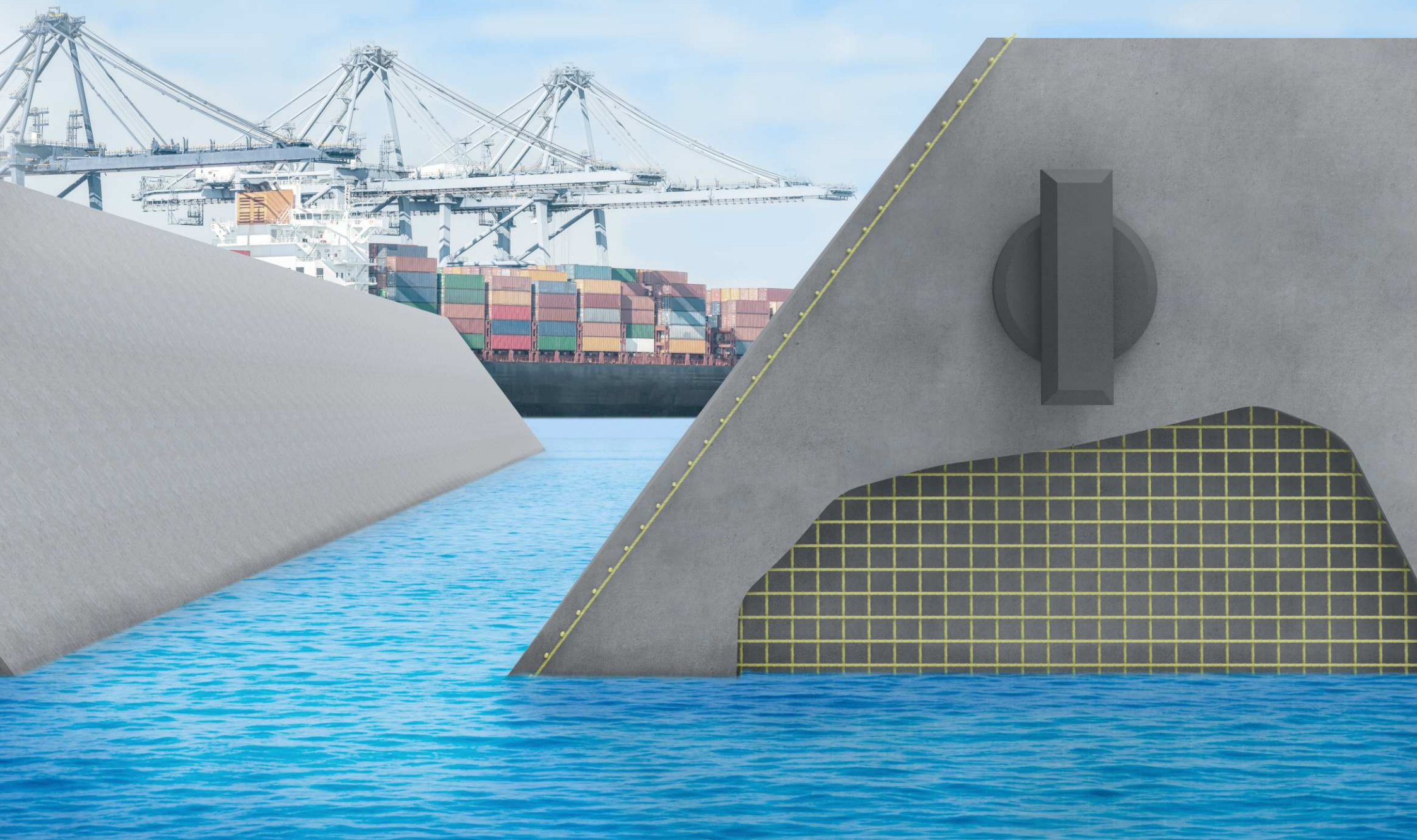
- bridge deck Weightman Bridge, City of Niagara Falls, Canada
- bridge cap and barrier walls of the McHugh Street-Bridge in Windsor, Canada
- ballasted rail slab Bahnhofspatz Bern, Switzerland
- gare de Péage in Tain, France
- airfield at airport Zürich, Switzerland

Bridge deck, Canada



Bridge deck, Canada

SMINBar™
CANALS AND PORT INFRASTRUCTURE



SMINBar™ offers substantial benefits in constructing port infrastructure and canals. Composites excel in corrosive marine environments. Unlike steel, they resist rust, extending structural life and decreasing maintenance costs.

Their lightweight nature eases transportation, installation, and handling, expediting construction and potentially lowering expenses.

Despite being light, composites possess impressive strength-to-weight ratios, bolstering the durability of port and canal structures.

SMINBar™ facilitates the creation of enduring, cost-efficient, and resilient maritime and waterway structures, vital for efficient transportation and trade networks.



As it is corrosion-resistant to fresh and seawater, SMINBar™ is ideal for installation in coastal and irrigational applications

- harbours and channels
- dams
- water transmitting and irrigation systems
- ports water infrastructure

REFERENCES

- I-275 Skyway Rest Area & Seawall Rehabilitation project
- Harker's Island Bridge Replacement
- Sea wall at the royal villa in Doha, Qatar

Coastal defense project Blackpool, UK



GFRP reinforcement for Harker's Island Bridge

SMINBar™
ROADS AND ROAD INFRASTRUCTURE



SMINBar™ brings substantial benefits to road construction and infrastructure. It resists corrosion from weather and heavy traffic. Unlike steel, SMINBar™ doesn't corrode, leading to longer-lasting structures and lower maintenance.

Furthermore, composites' flexibility allows tailored designs, optimizing structural integrity. This adaptability results in resilient roads capable of withstanding dynamic stresses and reducing repair needs.

In summary, composite rebar revolutionizes road construction by offering corrosion resistance, lightweight strength, and adaptability.



Chemical resistant and durable SMINBar™ is perfect material for

- road slabs
- protective barriers
- gutters and concrete trays
- large diameter concrete pipes
- auxiliary road facilities

REFERENCES

- bridge deck Weightman Bridge, City of Niagara Falls, Canada
- bridge cap and barrier walls of the McHugh Street-Bridge in Windsor, Canada
- ballasted rail slab Bahnhofplatz Bern, Switzerland
- gare de Péage in Tain, France
- airfield at airport Zürich, Switzerland

Floor slab railway depot Basel, Switzerland



Successful crash test on TL-5/PI-3 barrier wall

SMINBar™

SWIMMING POOLS AND SEPTIC TANKS



SMINBar™ provides significant advantages in constructing pools, septic tanks, and wastewater treatment facilities. SMINBar™ resists corrosion from chemicals and moisture, ensuring prolonged structural integrity and reduced maintenance costs. Their lightweight property simplifies installation and handling, expediting construction and potentially lowering expenses. Additionally, SMINBar™ durability makes it suitable for containing chemicals and wastewater.

In summary, composite reinforcement enhances the durability, corrosion resistance, and longevity of pools, septic tanks, and wastewater treatment structures, leading to cost-effective and resilient construction solutions.



Resistance to aggressive matters and eco-friendliness make SMINBar™ ideal for applications in

- wastewater treatment plants
- concrete storage tanks for chemicals
- concrete trays and pipes
- septic tanks
- water pools

Jizan Flood Mitigation Channel



STP Canada

SMINBar™

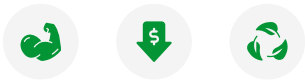
PRIVATE HOUSES AND NON-STRUCTURAL MEMBERS



Utilizing SMINBar™ presents significant benefits in the realm of private home construction and non-structural concrete elements such as strip foundations, slab bases, columns, driveways, and pedestrian pathways. Comprising materials like SMINBar™ exhibit impressive resistance to corrosion, guaranteeing prolonged structural integrity amidst diverse environmental conditions.

Furthermore, the inherent flexibility of composite materials allows for precision-designed solutions, thereby optimizing both strength and longevity.

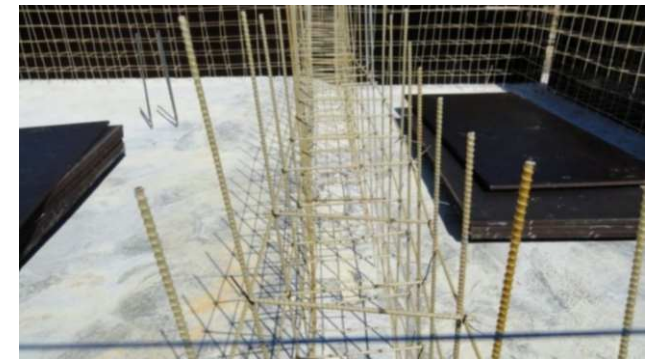
In essence, SMINBar™ amplifies the endurance, corrosion resilience, and customizable nature of non-structural concrete features within residential projects, offering an economical and effective approach.



Cost effectiveness and extreme durability make SMINBar™ a perfect choice for

- foundation slabs
- strip foundations
- columns and walls of houses up to 3 floors
- access roads and pedestrian areas
- bases and columns for fences

Strip foundation, private house



Base slab, private house

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