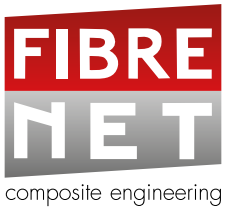
Systems and solutions for safety and structural reinforcement

Excellence in seismic protection

FIBRE NET

composite engineering



we give shape to your ideas
safety to your projects

FIBRE NET GROUP

FIBRE NET GROUP is a crew that tackles the waves and currents of an evolving world every day, charting the route of product and service quality and steering the bow towards its North Star: customer satisfaction

Born as a company specialized in the production of composite materials for construction and infrastructure and industrial sectors, today FIBRE NET GROUP brings together engineering, manufacturing, and innovation know-how across the two brands:

FIBRE NET composite engineering

Existing structures products for safety, reinforcement, and restoration systems and products.

p-TREX by FIBRE NET

Access, service, and fencing structures for industrial and infrastructural sites.


FIBRE
NET
composite engineering
ITA
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LEA MARINE
11

We give shape to your ideas security to your projects

FIBRE NET is one of the main European players in the design and production of composite materials for applications in the construction and infrastructure sectors.

It develops and produces certified systems widely used in structural restoration, seismic consolidation, and securing existing buildings and infrastructure.

Whether it's projects for reinforcing masonry or concrete, FIBRE NET is a qualified partner able to support public or private entities, designers, and contractors in finding the most effective solutions for consolidation, structural improvement, and durability.

With 22 years of experience, over 25,000 projects, over 15,000,000 square meters of composite materials supplied over the years, and 150 employees, FIBRE NET offers the technical excellence of "Made in Italy" globally.

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When we think of a new product or an innovative system, we do not limit ourselves to the typical application for which it was created, but we continue to analyze, test, design to better understand the nature and potential of innovation

Tests and certifications, R&D, experimentation

FIBRE NET provides its partners with laboratories, equipment, and expertise for conducting tests, including on-site, for diagnosis, mechanical and chemical characterization of materials, and for developing intervention cycles.

It carries out research and experimentation activities in collaboration with universities, research institutes, and independent organizations to promote continuous innovation in the construction sector.

From these synergies derive validation and certification activities of products and systems in support of the designer, DL and client in accordance with national and European regulations.

a strong and ongoing relationship with the academic world

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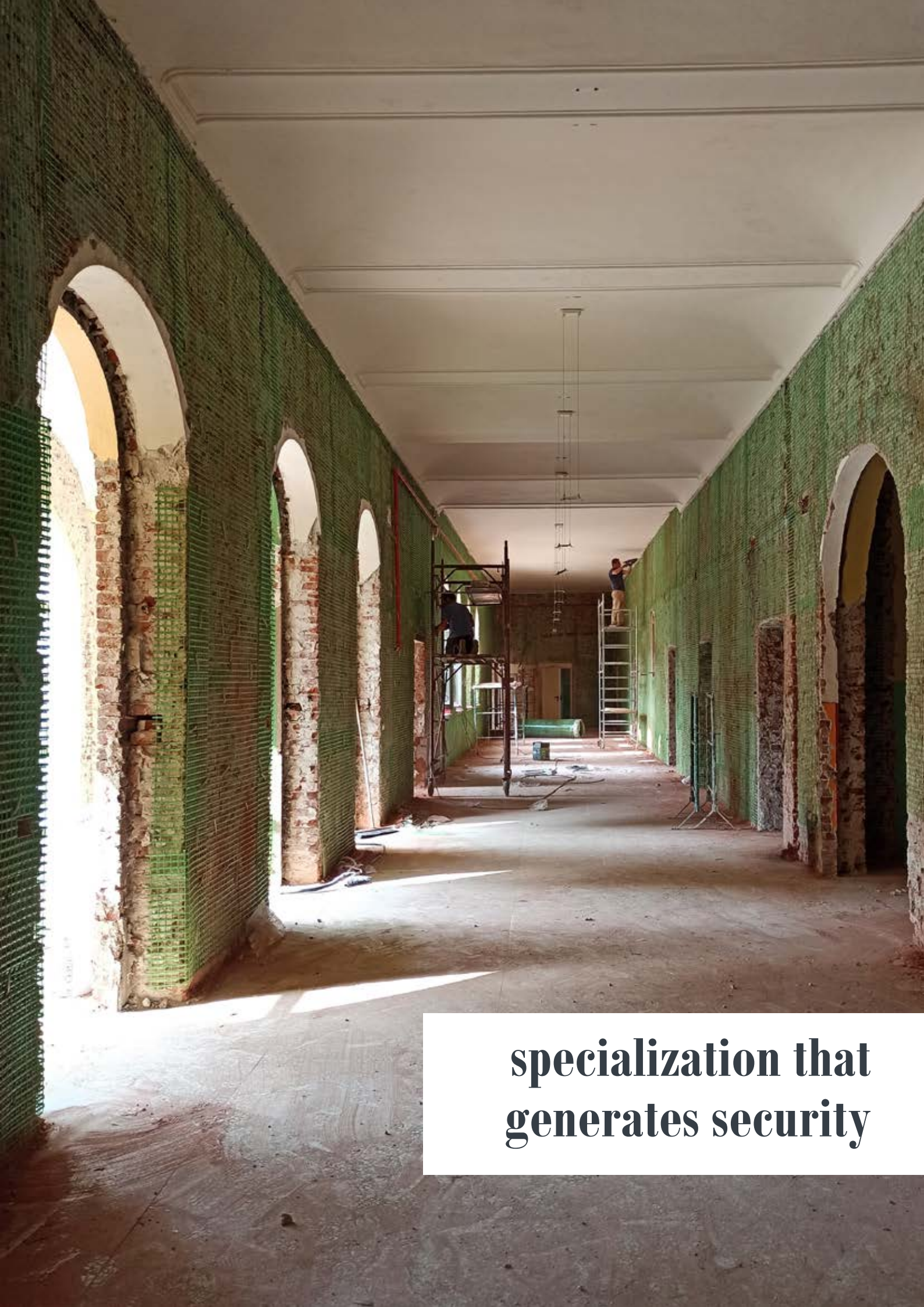
FIBRE NET is specialized engineering, production, assistance in the service of safety in the construction world

Competence and Know-how

The professional and dimensional growth of FIBRE NET has gone hand in hand with the commitment to spreading the culture of innovative composite materials. FIBRE NET is recognized as a reliable partner capable of offering a 360° proposition in the field of reinforcement and restoration solutions.



specialization that generates security

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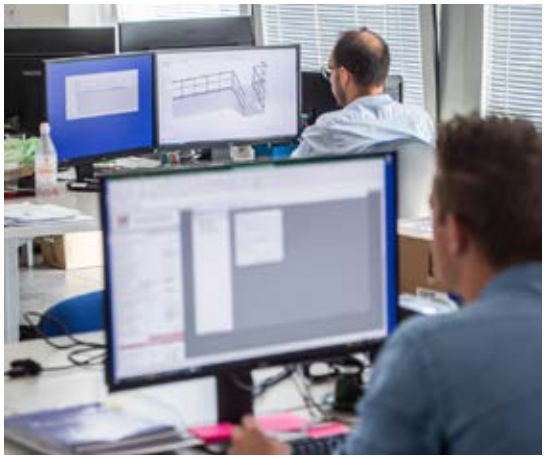
A team of engineers leads several highly qualified multidisciplinary work groups in design and project consulting

Engineering

The added value for the organization, the designer, and the company lies precisely in the integration of engineering skills and managerial capabilities that allow intervention on large-scale projects in the civil and infrastructure sectors.

FIBRE NET's services range from technical assistance from design to procurement to on-site implementation: feasibility analysis, structural design, management optimization of the intervention, quality control, on-site testing, monitoring of time and costs.



we design every detail

A team of specialized technicians entirely dedicated to civil construction

Assistance

Our team is active in direct training for the workers on site for the correct preparation and installation of all FIBRE NET and P-TREX systems. It provides assistance during all work phases, material testing, and final site operations.

alongside the designer, alongside the company

FIBRE NET
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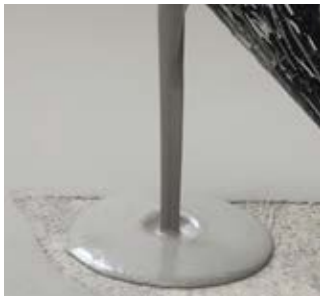
Italian production environmentally friendly

MADE IN ITALY

FIBRE NET specializes in the development, engineering, and production of composite systems and materials for structural reinforcement and seismic improvement, as well as mortars and technical products for the restoration and maintenance of works of art.
Safety, performance enhancement, and respect for the construction characteristics of structures are the guiding principles of the design of every FIBRE NET system and product.






FIBRE NET's commitment translates into a structured and high-performance work methodology.
Environmental protection means producing innovative systems through low-energy and low CO_2 emissions processes, implementing a short supply chain, and continuously improving production line performance.
Continuous optimization of production and logistics processes pursues sustainability standards.

- production entirely Made in Italy
- environmentally friendly systems, developed to reduce energy consumption both in the production phase and in handling and use
- products compatible with natural materials and suitable for use in green building

CONFORMITÀ CAM

EPD ITALY

for over 20 years
we have been producing safety

FIBRE NET
composite engineering

RI-STRUTTURA

CRM Reinforced Coating

CE

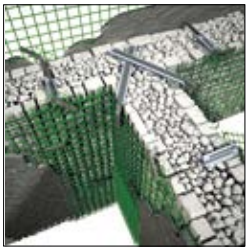
CRM
Accertamento di Equivalenza

RI-STRUTTURA uses the new generation CRM - Composite Reinforced Mortar - system technique through the use of meshes, angle elements and connectors made of composite preformed material in AR glass fibers and thermosetting resins.
It is completed with NHL lime or cement based plaster mortars.

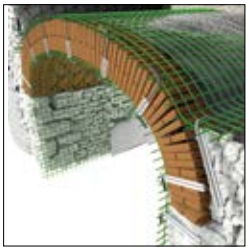
- Structural interventions on civil and industrial buildings after seismic events
- Seismic improvement of historic and restricted buildings
- Consolidation of degraded structures
- Improvement and adaptation following changes in the intended use

RI-STRUTTURA is an easy-to-use solution, especially on historic masonry buildings where effective consolidation and structural improvement are required with non-invasive and compatible methods, often in complex operating and logistical conditions.

The lightness of the materials, the availability of the meshes in rolls up to 100 m^2 easy to handle, the relative stiffness of the materials allow a quick and easy installation, thus applying the mortar in manual or automatic mode in a single layer.
The result is a reduction in installation times and costs and a better organization of the construction site.



Reinforcement of masonry
RI-STRUTTURA allows to obtain a homogeneous and diffuse structural improvement, through the improvement of the shear and bending resistance of the masonry with a modest increase in the stiffness of the structure.
It guarantees a high durability of the intervention thanks to no corrosion even in highly aggressive environments, eventually the reversibility of the entire system.



Consolidation of arches and vaults
The intervention of vault reinforcement can be carried out on the intrados, on the extrados or on both sides with or without connections.
The use of low thickness lime hoods allows for a minimally invasive, compatible and highly effective intervention.

Reinforcement of floor
RI-STRUTTURA guarantees better ditribution both in terms of loads and horizontal seismic forces on existing ceiling slabs.
The mesh can be connected to the below ceiling slab through metal connectors to create a collaborative ceiling slab with high mechanical characteristics.

Consolidation of columns and pillars
It is also possible to create customized elements for the confinement, protection and consolidation of beams and pillars according to the specific needs of the construction site.

BETONTEX

FRP Fiber reinforced polymer plating

BETONTEX FRP fibre-reinforced system is composed by fabrics, meshes, flocks, preformed laminated sheets and bars made by carbon fibers and epoxy matrices. Thanks to their high mechanical properties, lightness and corrosion resistance, BETONTEX products allow to increase shear, bending and compression resistance of historical or modern structures.

- Chain securing, confinements and circles of structural element for buildings
- Reinforcement of structural elements on & off-plane
- Consolidation of arches and vaults
- Reinforcement and stiffening of steel, wood, brick and concrete ceiling slabs
- Improvement of the compressive resistance of masonry and concrete columns and pillars
- Consolidation and protection of degraded structures

BETONTEX system performs perfectly for localized reinforcements and hoops of stressed areas such as pillars, beams, beam-pillar connections, inter-floor and top curbs. Reinforcement sizing and working direction of the fibers can be effectively designed in order to optimize the mechanical properties of the reinforcement. Unidirectional, bidirectional and multiaxial fabrics are available to be impregnated on site for easily modeled, thus allow interventions on irregular elements.

Reinforcement of concrete and RC elements
Masonry columns and reinforced concrete pillars, can be plated through carbon fiber and epoxy resin elements that provides adequate confinement that counteracts the transverse expansion of the structural element and determines an improvement in the performance of the element both in terms of resistance and ductility.

Consolidation of floor
BETONTEX can also be used to increase floor stiffness on ceiling slabs. This system, arranged on the extrados of the ceiling slab according to a certain design scheme, increase plan stiffness and seismic action distribution, with a negligible mass contribution. Applied to the intrados, it improves the flexural capacity of the ceiling slab.

Consolidation of arches and vaults
These reinforcement systems can be used to prevent local and global collapse mechanisms and to obtain increases in mechanical resistance and ductility E.G. at the intrados and extrados of arches and vaults.

Reinforcement of masonry
BETONTEX is the reinforcement, repair and anti-overturning system by means of FRP fiber-reinforced plates with high tenacity and high modulus carbon fiber fabrics and meshes, combined with thermosetting epoxy resins.

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composite engineering

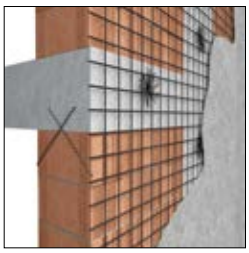
H-PLANET

CRM reinforced coating

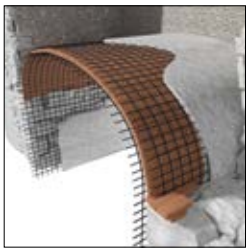
H-PLANET reinforcement system is developed according to the CRM (Composite Reinforced Mortar) technique consisting of preformed meshes and accessories with very low thickness and improved adherence, combined with high strength mortar, and it guarantees excellent mechanical characteristics and durability to the structure. The elements thus reinforced increase their ductility and dissipative capacity on the plane, as well as resistance to orthogonal actions.

- Seismic improvement and adjustment
- Anti-overturning of partitions and infills
- Consolidation of degraded structures, arches and vaults
- Restoration of structural continuity
- Load distribution on ceiling slabs with poor characteristics
- Improvement of the pressure-bending behavior of columns and pillars in concrete and reinforced concrete.

H-PLANET mesh is easy to install thanks to the self-supporting characteristics, due to the stiffness of the material. The mortar is applied in a single layer manually or automatically, incorporating the mesh in its thickness, without operating on unhardened mortar as is the case for common reinforcement systems with raw & starched meshes. The results are a reduction in installation time and a better organization of the construction site.



Consolidation of masonry
H-PLANET reinforcement, repair and anti-overturning system for structural and secondary elements uses preformed carbon meshes with improved adhesion, combined with concrete-based mortars for the realization of thin reinforced plasters according to the CRM technique. The result is the widespread improvement of the cut and bending resistance of the masonry panels in the behavior on and off plane.



Consolidation of arches and vaults
The system is applicable for vaults reinforcement to both the intrados and the extrados and at the same time provides the flexual strenght required in seismic and static conditions, without significant weight gain.

Reinforcement of floor
H-PLANET system provides preformed meshes and bars to create collaborating reinforced slabs. The mesh can be connected to the underlyng ceiling slab through metal connectors.

Consolidation of columns and pillars
It can be used for the confinement of concrete and reinforced concrete columns in order to improve the press-flex characteristics.

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composite engineering

RETICOLA

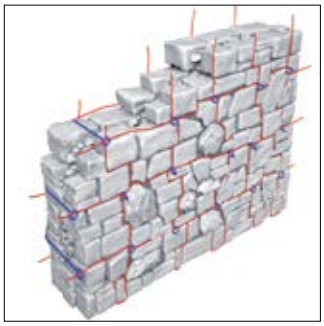
Reinforced pointing

RETICOLA system consists in the realization of a **reinforced pointing of the joints** on stone walls and masonry, by means of stainless steel strands and connectors positioned within vertical and horizontal joints. The reinforced pointing of the joints is the solution for the improvement of the mechanical characteristics of "stone" walls as it provides effective confinement and **improvement of the mechanical resistance**, without compromising the aesthetic appearance and the typicality of the masonry; this type of reinforcement intervention **improves the shear and compression strengths** and provides a significant **increase in ductility**.
This is particularly important on historic masonry buildings where the presence of multiple scarcely connected vestments, the low quality of the mortars and the need to **preserve the architectural aspect** of the structure, require highly effective but low aesthetic impact structural reinforcement solutions.

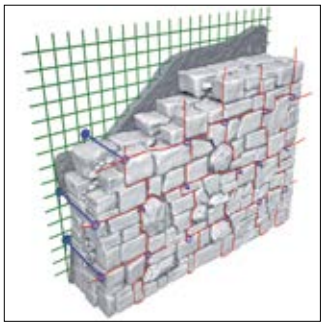
- Seismic improvement of historic and restricted buildings
- Consolidation of degraded structures
- Confinement and anti-overturning systems

Compatibility with NHL lime mortars and natural materials, together with the reversibility and "invisibility" of the intervention, allow it to be used effectively on walls and facades subject to architectural constraints without compromising their aesthetics.

Reticola
RETICOLA system based on the Reticolatus™ technique consists in the realization of a reinforced pointing of the mortar joints of the stone or brick elements making up the wall, through special stainless steel strands and connectors, designed and sized for the specific use.



Reticola Twin
RETICOLA TWIN system consists in the realization of a reinforced pointing of the joints on both sides of the wall panel by means of stainless steel strands and connectors positioned within the mortar joints. The three-dimensional reinforcement that is created improves the cut, bending and compression of the masonry, thus maintaining its aesthetic appearance.



Reticola Plus
RETICOLA PLUS system is a further evolution of the RETICOLA system and involves the construction of a reinforced pointing of the joints on the wall to be left exposed and the application of a plaster reinforced with GFRP preformed meshes on the opposite wall to be coated. The three-dimensional reinforcement that is created improves the cut, bending and compression of the masonry, thus maintaining its aesthetic appearance.

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composite engineering

C-MATRIX

FRCM fiber reinforcement

C-MATRIX represents an innovative range of FRCM systems (Fiber Reinforced Cementitious Matrix) designed to offer effective reinforcement solutions for masonry (tuff, brick, and stone) and concrete structures.
The C-MATRIX systems are designed for adhesion applications on substrates with different characteristics and ensure high performance in any application context, whether historical or modern.

C-MATRIX S-M-H
Performance tailored to the project

The **C-MATRIX S-M-H** systems combine AR glass or carbon fiber meshes, both dry and impregnated, with inorganic matrices based on natural hydraulic lime (NHL) or cementitious materials.
A wide range of qualified systems allows for identifying the most suitable solution based on the specific project requirements.
The use of glass or carbon fiber connectors further increases the effectiveness of the intervention.

Increasing performance

C-MATRIX S = STANDARD

C-MATRIX M = MEDIUM

C-MATRIX H = HARD

Fields of application of C-MATRIX S-M-H Systems

- Structural reinforcement and seismic improvement of existing structures
- Increase in structural strength and ductility
- Prevention of local and/or global collapses
- Reinforcement of arches and vaults, even of reduced thickness
- Confinement and reinforcement of columns
- Anti-overturning measures and reinforcement of non-structural elements
- Top beams in reinforced masonry

Safe, versatile, and sustainable systems

- **High performance**

Improvement of tensile strength even under high loads, without increasing the stiffness and mass of the structure

- **Durability and Compatibility**

The reinforcement-matrix system offers optimal chemical-physical compatibility with the supports, ensuring the durability of the intervention over time

- **Ease of application**

The AR glass fiber or carbon nets, lightweight, flexible, and manageable, allow for easy and quick application with the "wet on wet" technique.

- **Environmental sustainability and living comfort**

The C-MATRIX systems are eco-friendly and have a low environmental impact, meeting CAM criteria and certified with EPD

- **Versatile solution**

Ideal for historic buildings and modern masonry and concrete structures, the C-MATRIX systems are thin and non-invasive reinforcements, suitable for various types of supports, even non-flat ones, such as vaults, arches, and pillars.

- **Reversibility of the intervention**

Compliant with the reversibility criteria required for protected architectural heritage, C-MATRIX allows for easily removable interventions.

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LIFE+

Anti-collapsing

LIFE+ is the system for securing concrete, steel or timber slabs subjected to the phenomenon of detachment of elements such as portions of plaster or blocks known as “bottom-spalling”. LIFE+ foresees the application of preformed meshes made of glass fibers and thermosetting resins fixed on the joists at the intrados of the floor by means of specifically dimensioned structural connection systems, obtaining an effective containment of the elements subject to detachment. Once the floor has been secured, the system can be left exposed, plastered or covered with a false ceiling.

The low weigth of materials, the availability of the meshes in rolls of up to 100 m^2 that are easy to handle, and the relative rigidity of the materials, allow for quick and easy installation, applying mortar in manual or automatic mode in a single layer and without the need to work “fresh on fresh”. The result is a reduction in time and laying costs and improved site management.

The term "slab bottom-spalling" is used to indicate the breaking and detachment of clay hollow blocks used in the construction of floor/roof slabs.
This phenomenon represents a risk to people's safety: it is sufficient to remember that the sudden collapse of a portion of the ceiling involves the detachment of approximately 25 ÷ 40 kg/m^2 of material, up to 90 kg/m^2 in the most important cases.
It affects almost half of the schools and public buildings in Italy and, in general, buildings constructed between the 1940s and 1970s, and is linked to errors in design, execution, choice of materials, changes in the static conditions of the floor, environmental conditions and the lack of an adequate maintenance plan.
Some signals not to be underestimated:

- plaster cracks
- signs of surface degradation (swelling, seepage, etc.)
- partial detachments, even of small ones

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SAFE+

Anti-seismic Devices

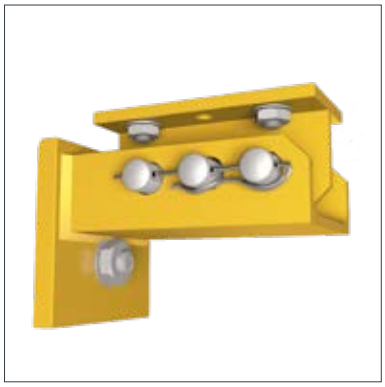
CE

Recent earthquakes have highlighted the vulnerability of prefabricated buildings in reinforced concrete and pre-stressed reinforced concrete, mostly intended for industrial activities designed and built without the application of specific anti-seismic criteria between 1950 and 2000.
These same structures are not adequate today compared to the new current safety criteria and therefore require quick, safe, and effective adaptation interventions.

The SAFE+ anti-seismic devices have been developed, engineered, in compliance with UNI EN 15129, as seismic safety measures for existing prefabricated buildings in reinforced concrete and pre-stressed reinforced concrete.

SAFE+ systems, having the dual function of mechanical connection between structural and non-structural elements and dissipation of seismic energy, create a 'dynamic constraint' between the elements, improving the structure's ability to respond to seismic stress while maintaining the building's functional operability.

SAFE+ Model A
Combined seismic device, with function of mechanical connection with fuse + energy dissipater + mechanical damping link, classified as a Nonlinear behaviour Device NLD according to the EN 15129/2009 regulation.



SAFE+ Model B
Seismic device with function of energy dissipater + mechanical constraint, classified as a Nonlinear
Elastic behaviour Device NLED according to the EN 15129/2009 regulation.

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CIVIL MORTARS FOR THE CONSOLIDATION OF HISTORICAL MASONRY

EPOCA

The EPOCA line is composed of structural mortars and eco-compatible binders based on natural hydraulic lime NHL with high workability, which have characteristics of breathability, compatibility, and durability. They are used in the realization of reinforced plasters and consolidations of historical and constrained masonry as well as in green building.
The line also includes finishing and protective skim coats formulated with natural hydraulic lime NHL.

CIVIL MORTARS FOR THE CONSOLIDATION OF MASONRY

MATERIA

CE

MATERIA is the line of structural mortars developed for interventions of consolidation, restoration, repair, and reinforcement on stone and brick masonry.
It consists of mortars with different mechanical performances based on lime and hydraulic binder, eco-friendly, breathable, with high adhesive power, and premixed finishing coats, to complete the intervention cycle.

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MORTARS FOR ANCHORING, REPAIR, RESTORATION AND CONSOLIDATION OF REINFORCED CONCRETE

STRUTTURA

CE

STRUTTURA is a technical line composed of mortars and thixotropic, fluid or superfluid grouts. The proposal includes products reinforced with synthetic, inorganic or metallic fibers, modified or air-entrained polymers, mono or two-component, developed for structural and cortical restoration interventions, thickening of reinforced concrete elements, grouting and precision anchoring.
The line is completed with finishing and protection screeds.

COMPLEMENTARY PRODUCTS FOR WORKS ON MASONRY AND REINFORCED CONCRETE

INTEGRA

INTEGRA is a line of complementary technical products developed to integrate repair and restoration cycles of reinforced concrete and masonry.
It consists of passivators for reinforcement, binders, additives, anchoring resins, and jetting resins.

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P-TREX
by FIBRE NET

Pultruded Profiles

FIBRE NET combines expertise in processing fiber-reinforced composite materials with a deep-rooted heritage of engineering competence, giving life to the P-TREX brand, which identifies and develops lightweight structures composed of pultruded profiles and FRP gratings: dedicated teams, know-how, and production lines ensure the development of certified and customized solutions.

For use in construction, the P-TREX structural profiles stand out from traditional materials for their high mechanical strength and lightness, for their absence of corrosion and electrical insulation, representing an improvement solution of great technical value. Lightweight, easy to install, they can be assembled according to the designer's specifications and do not require maintenance.

P-TREX solutions are designed with the same engineering expertise that FIBRE NET has developed in over twenty years of experience in the seismic field.

After analyzing needs and context, the design team develops precise technical-operational evaluations, preparatory to the realization of customized solutions capable of meeting the client's desires in compliance with current regulations.

Pultruded FRP profiles are particularly suitable for both the construction of lightweight framed structures and the reinforcement of existing structures.

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an idea, a passion,
an ever-evolving history

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SYSTEM CERTIFICATION ISO 9001 SGS

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SGS in accordance with
ISO 9001:2015 standard

CSI
RECYCLABLE COMPOSITES
Licence FRP140001

ISO 14001
LL-C (Certification)