

# LIGHTWEIGHT AND MODULAR STRUCTURES



**Serge Ferrari** 

A range of composite materials that makes the difference...

The Serge Ferrari Group, founded in 1973, produces composite membranes designed for **multiple applications** in industrial, architectural and specialist fields.

Since 1986, Serge Ferrari has created and perfected **fire retardant composite materials** for the frame tent, clearspan structure, and marquee tent markets, due to its initial expertise in flame retardancy formulation. In addition, the Serge Ferrari Précontraint® technology is a unique and patented manufacturing procedure that endows these membranes with acknowledged **qualities that make the difference**. This brochure will allow you discover each of these advantages.

Vertical industrial integration enables Serge Ferrari to control all of the activities in its production chain :

Research & Development



Coating or extrusion



Spinning



Logistics



Weaving



Recycling



Formulation



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## BENEFIT

Stress resistance maintained over a longer period equals increases project life span.



# Life span, durability & stretch resistance

## Serge Ferrari Précontraint® Technology

The worldwide patented Serge Ferrari Précontraint® technology, consists of **pre-stressing** the fabric media before and during all coating operations. Unlike a conventional fabric, Serge Ferrari Précontraint® membranes are subjected to a more **even regular stress on both warp and weft**, offering similar stretching characteristics in both directions.

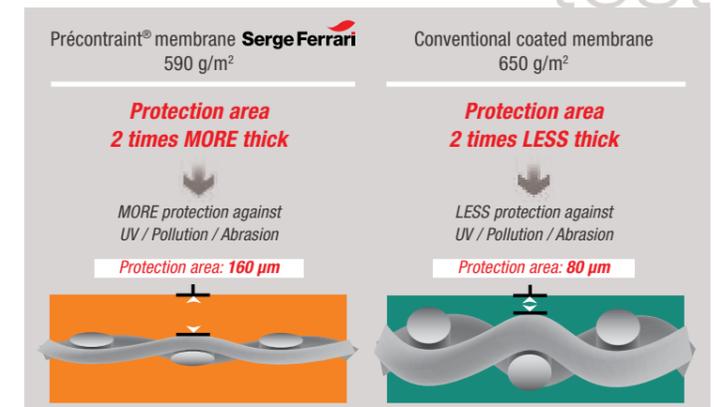
**The result is: extreme stability in terms of size - limited creep over time - extended useful life span - homogeneous performance between different batches.**



## A thicker coating for an exceptionally long life

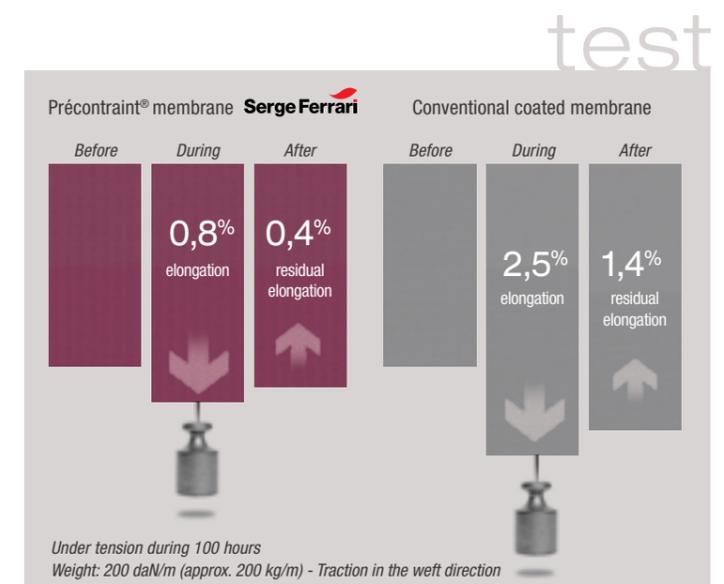
The Serge Ferrari Précontraint® membranes offer a significantly **thicker coating at the crest of the threads** than conventional membranes. Consequently, **the core is better protected** against atmospheric attack: UV, hydrolysis and pollution.

This coating thickness also provides **better weldability**.



## Excellent resistance to stretching

Thanks to the dual advantage of straight threads and minimum shrinking, Précontraint® membranes **stretch three times less** than a conventional coated membranes in the weft direction. This characteristic is a **decisive factor** when putting the membranes under tension.



## BENEFIT

The Précontraint® technology and Serge Ferrari range of products offer sound insulation and absorption solutions enabling tents to be perfectly and quietly integrated in an urban environment.



# Noise reduction & sound insulation

## Reducing wind flap

When the structures are assembled, the fabrics are traditionally only stretched lengthwise (with the slay). The exceptional stability of Précontraint® fabrics with the weft, **ensures perfect membrane tautness** between the structure's trusses despite being unable to stretch in this direction.

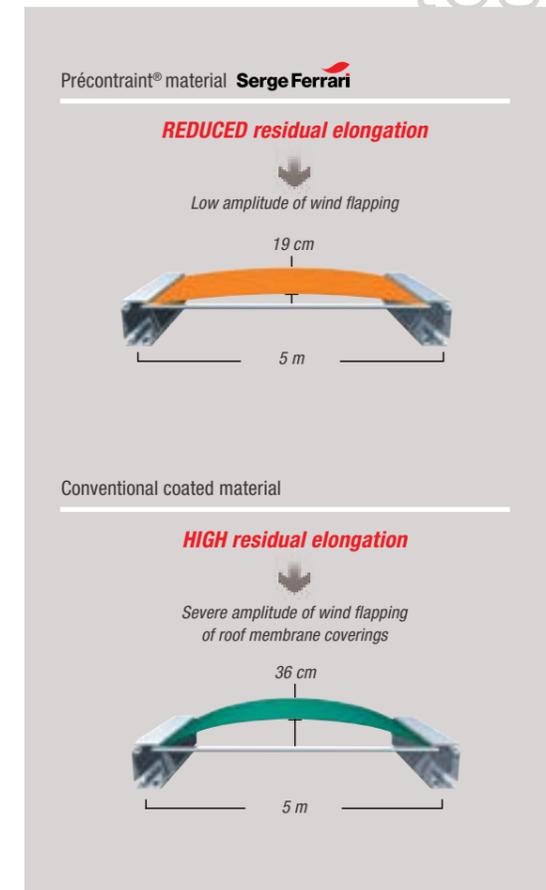
## Sound insulation solutions

The Serge Ferrari range consists of different products which, when inter-connected, provide a significant **economy of sound under the tent**.

As an example, here are a few average values observed:

- single interfacing: from -13 to -17 decibels (depending on the weight of the membrane),
- double Précontraint® 502S interfacing with 50 mm-thick mineral wool: -20 decibels,
- 4802 Stamoid® PVC foam: -19 decibels (on average):

test



## BENEFIT

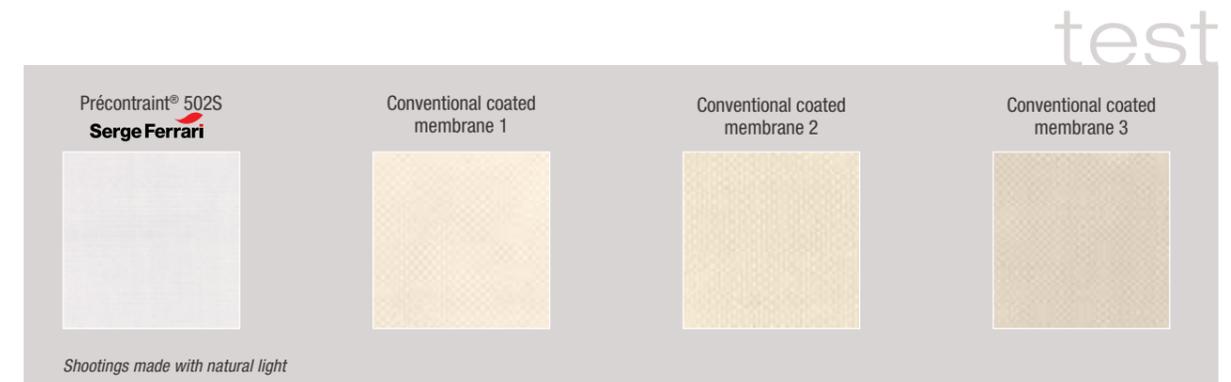
The whiteness and transparency of the composite materials remains unchanged over time ensuring optimal natural light for user comfort and safety.



# Whiteness, transparency & luminosity

## Ultra white

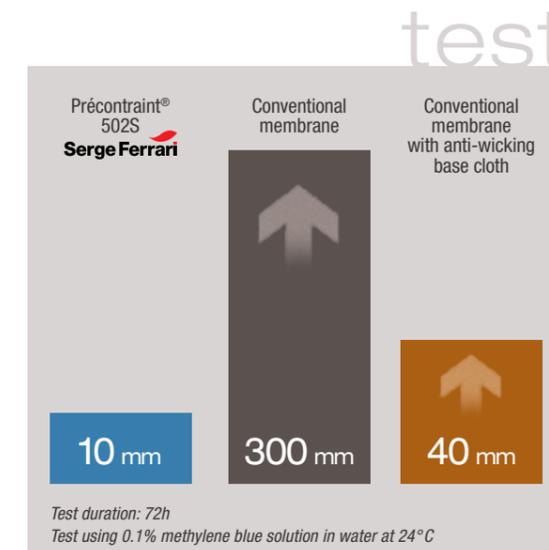
To ensure unparalleled aesthetics, the R&D laboratory and specialist engineering teams have developed PVC compounding that endows Serge Ferrari membranes with an **incomparable and lasting whiteness**, highly appreciated by its users.



## Anti-blotting effect treatment

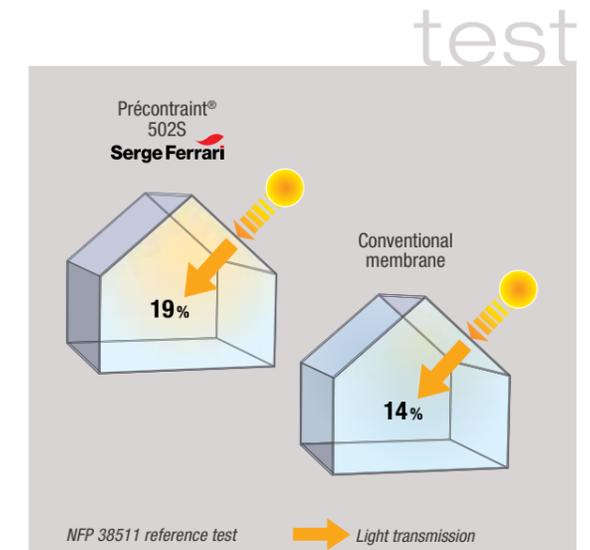
The anti-blotting paper effect Capillarity Resistant (CR) treatment strengthens the **mold resistant properties** of the backing thread.

After a 72-hour test, the capillarity penetration effect never exceeds 10 mm compared to 20 to 300 mm for conventional fabrics.



## Luminosity

When comparing equivalent technical performance, Serge Ferrari Précontraint® composite materials are **thinner overall** than conventional membranes. Therefore, they offer much **greater light transmission**. For example, Précontraint® 502 S has a transmission rate of 19% compared 14% for conventional fabric (NFP 38 511 reference test).

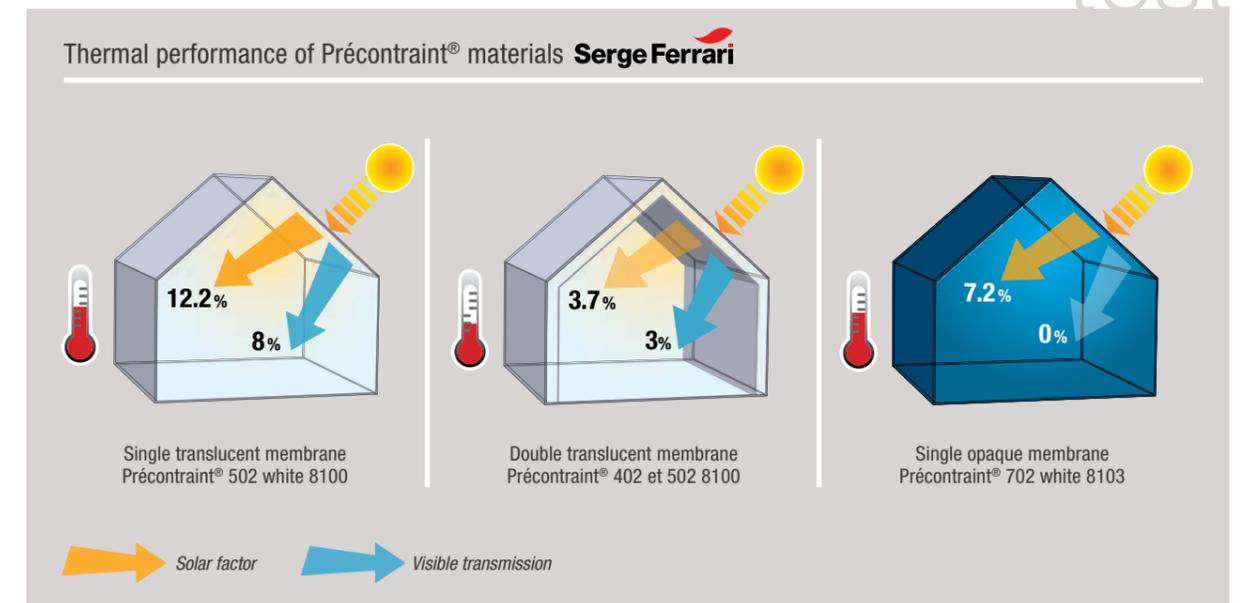




# Thermal comfort

## Double membrane

Double membrane is the optimal solution in terms of **luminosity/ thermal protection**. In addition, it reduces the condensation effect. By combining two composite materials in the Serge Ferrari range, the heating and air conditioning costs are reduced.



## BENEFIT

The heat comfort of users is greatly improved. Energy and maintenance costs for the structures (heating and air conditioning) are reduced.



## Opaque membrane

When there is the requirement for both **thermal protection** and **natural light blocking**, the Serge Ferrari opaque membranes provide an efficient solution:

- protection for UV sensitive products,
- high aesthetic quality of coating,
- dirt resistance,
- thermal comfort,
- true blackout.



## BENEFIT

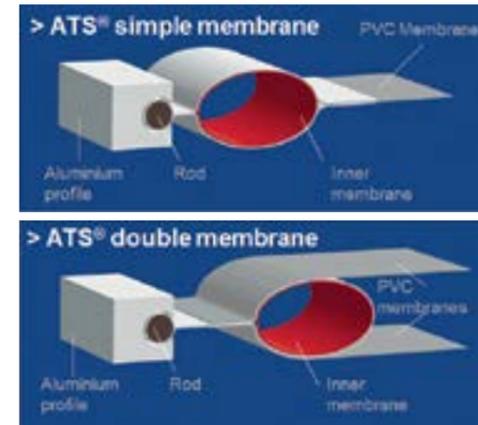
Your customers' property is safeguarded and you meet their needs and provide solutions.



# Technical performance & innovations

## ATS® solution

ATS® is an inflation-based tensioning system for tents, structures, temporary and permanent installations. ATS® can be used in single or double membrane configurations.



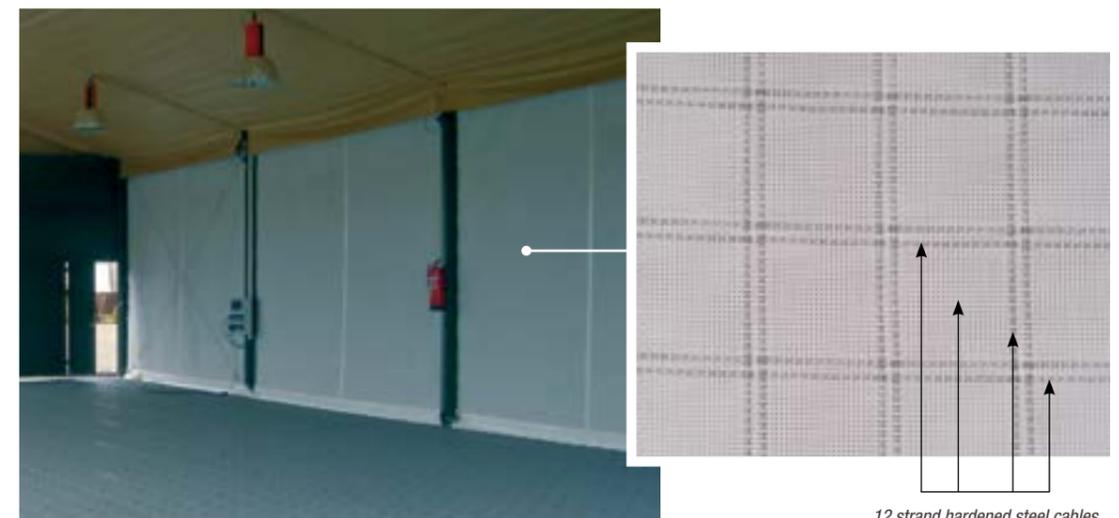
## Anti-theft solution to render lightweight and modular structures more secure

The DEFENDER® composite material is a Serge Ferrari patented innovation incorporating **highly resistant steel cables** (380 kg/mm<sup>2</sup>).

Used alone or combined with other Serge Ferrari membranes, it is efficient in making **secured tents and structures**.

It is particularly useful for large structures that may house valuable merchandise.

DEFENDER® keeps the **flexibility** of use and **attractive appearance** while effectively **protecting** against, intrusion, vandalism, theft and accidental tearing.



12 strand hardened steel cables

## BENEFIT

Your membranes are compliant with flame retardancy regulations worldwide.



# Fire resistance & certificates

## Fire resistance classification

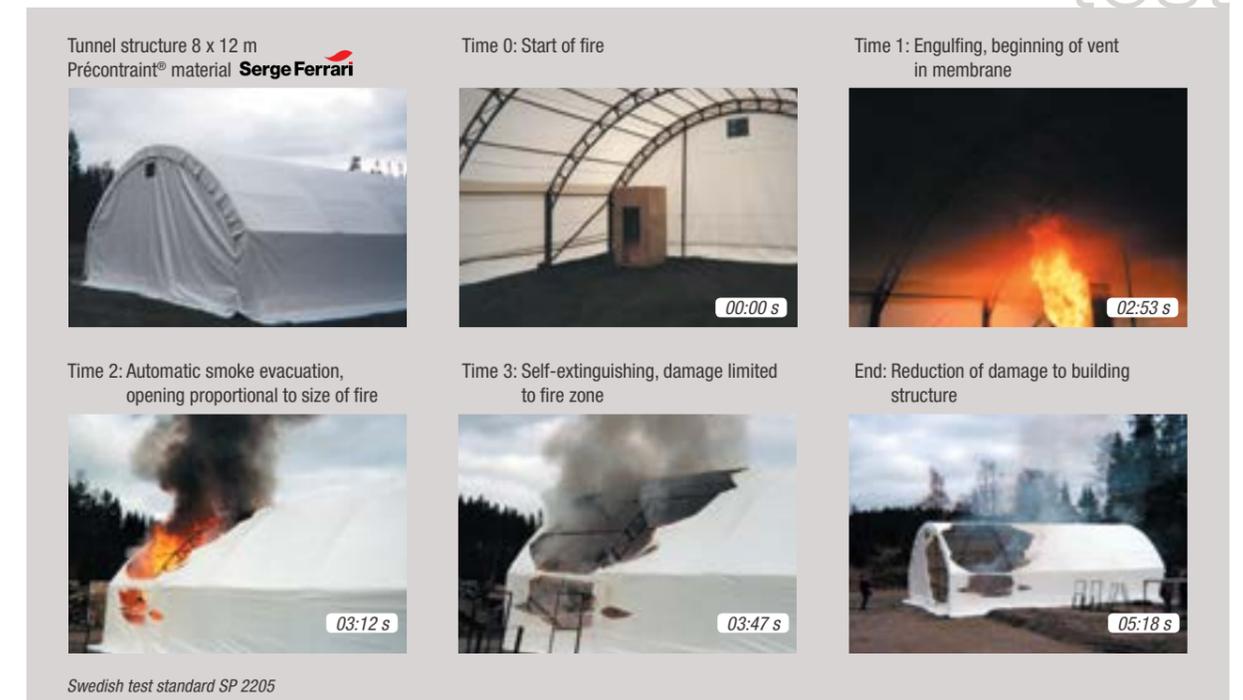
Serge Ferrari composite materials can be installed all over the world with all the fire certificate needed.

## Automatic smoke evacuation for optimum safety

Serge Ferrari Précontraint® composite materials are self-extinguishing; they do not propagate flames or cause burning droplets to fall.

Their specific fire resistant properties ensure smoke evacuation that is proportional to the fire area thanks to “automatic” venting at weld sites.

test



# Maintenance & Serge Ferrari warranties

## Easy to clean

Thanks to "S" surface treatment (acrylic and fluorinated resin alloy), Serge Ferrari composite materials are easier to keep clean and offer improved resistance to abrasion due to frequent cleaning. In addition, the high performance anti-UV agents offers a much better guarantee against ageing and yellowing than conventional fabrics.

*To encourage regular maintenance of your structures, Serge Ferrari has developed an effective, nonaggressive, antifungal detergent for optimal cleaning without the danger of fabric degradation. The M2 Précontrain® detergent is recommended according to the Serge Ferrari warranties.*

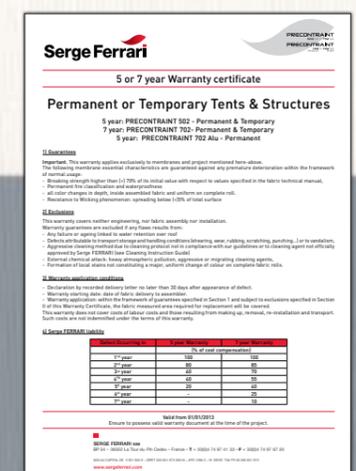


## Serge Ferrari warranties

For the last 20 years, Serge Ferrari has been the only manufacturer of coated membranes for the tent industry to offer a 5-7 years guarantee.

These warranties are binding for Serge Ferrari on the following aspects:

- resistance to tearing,
- long lasting flame retardancy,
- waterproof,
- maintained flexibility,
- stability of colours.



## BENEFIT

Membranes keep looking new over time and maintenance costs are reduced.





# Original shapes & special projects

The **lightweight nature of these membranes** is an important criterion which helps when handling and installing them. The Serge Ferrari Précontraint® technique provides this **flexibility of use** and offers a certain architectural freedom when designing the structure.

## Experience in the field of lightweight architecture

Stadiums, stands, logistics and shopping centres, as well as patios, pedestrian walkways, car parks, etc.

The Précontraint® composite membrane has made its mark through **reliability and the creative freedom** it offers for both modular infrastructure and lightweight architecture.

All around the world, it plays on **transparency and flexibility** bring the most unexpected and ambitious projects to fruition.

The Serge Ferrari tried and tested materials currently offer strengthened **surface resistance and lasting aesthetics**.

They harmonise with the surrounding materials and contribute to the prestige of many installations. All of these assets help you create projects of **imagination and individuality**.



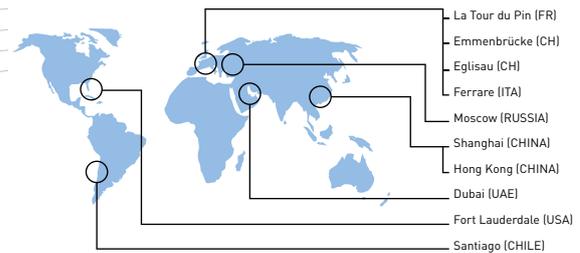
# Expertise & Services

## Quality strategy

Quality has been at the heart of the company's culture since the beginning. In fact, very early the Group set up, an incentive program based on the quality of the products was put in place. This program thus allowed the entire company to a total quality approach leading to ISO 9002 certification obtained for the first time in its profession, in 1992. Since then, this winning strategy has been further endorsed by ISO 9001 certification.

## Worldwide locations

Serge Ferrari has subsidiaries, agents and distributors in more than 80 different countries. The Group aims at technical membranes applications at providing market support to its partners manufacturer-installer clients, distributors and specifiers by means of cooperative development.



## Environmental policy

With its eco-design, cooperation and environmental policy, Serge Ferrari anticipates stringent regulatory requirements for all their products and assume the best possible practices for safety and the environment. In 2003, the Serge Ferrari company obtained its first certification ISO 14001, and then the Öko-tex label for most of its environmentally sensitive materials and became committed to the HQE® (Environmental High Quality) approach for building applications. Based on Life Cycles Analyses (LCA) carried out and tested by independent labs, the new Serge Ferrari products are eco-designed thanks to an optimal use of resources focusing on safety, minimal impact on the environment and incorporating renewable raw materials.



Please find the entire product range dedicated to modular structures in the sample book "Lightweight and modular structures".

**We are your partner for all your new ideas: please contact us !**

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- Secondary raw materials of high intrinsic value compatible with multiple processes
- A quantified response to combat depletion of natural resources

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**Serge Ferrari**