Precontraint composite materials
&
Sport venues

LONDON 2012
WARSAW 2012
PAN AMERICAN GAMES 2011

Serge Ferrari

London 2012

OLYMPIC DELIVERY AUTHORITY POLICY
GREEN GAMES
&
LEGACY

Serge Ferrari

LONDON 2012

Qualification of Precontraint membranes by the Olympic Delivery Authority : ODA

- Based on TEXYLOOP Recycling technology and Life Cycle Assessment studies
- Special formulation for compliance with ODA policy

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Overall site view

Venues with Serge Ferrari flexible composite materials

Walkway

Royal Artillery Barracks (Woolwich)

IBC center

Main Stadium

Vélodrome

Waterpolo Arena

London Aquatic Center (LAC)

Info Points in London

Tents Logistic/ Stocrage

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Main Stadium
Arch. Populous
Eng. Buro Happold
Contractor : Seele
Precontraint 1202 S2

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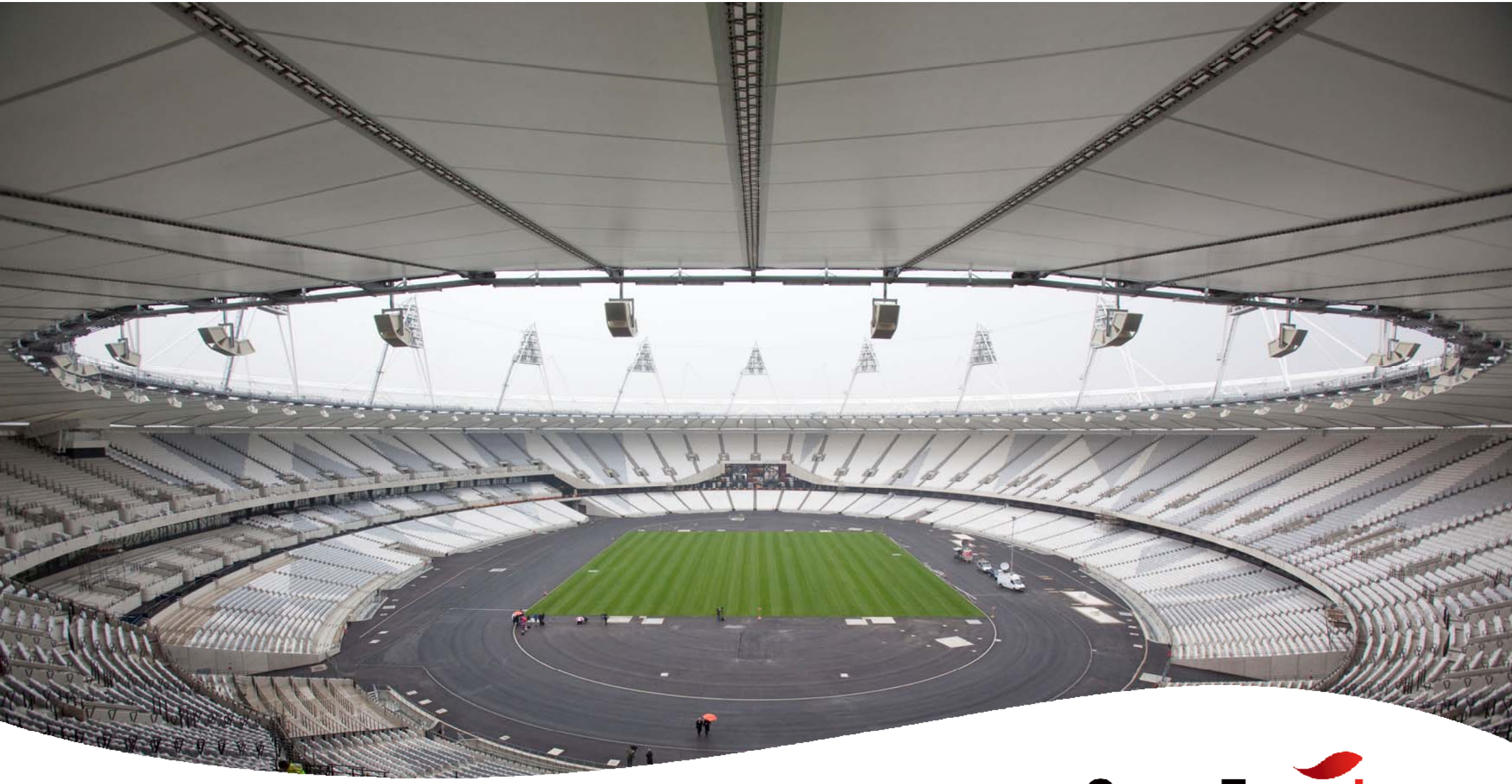
Serge Ferrari

Serge Ferrari



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Serge Ferrari

LONDON AQUATIC CENTER

Zaha Hadid Architects

Eng. Tensys

Contractor : Architen Landrell

Precontraint 1002 Stamisol 381

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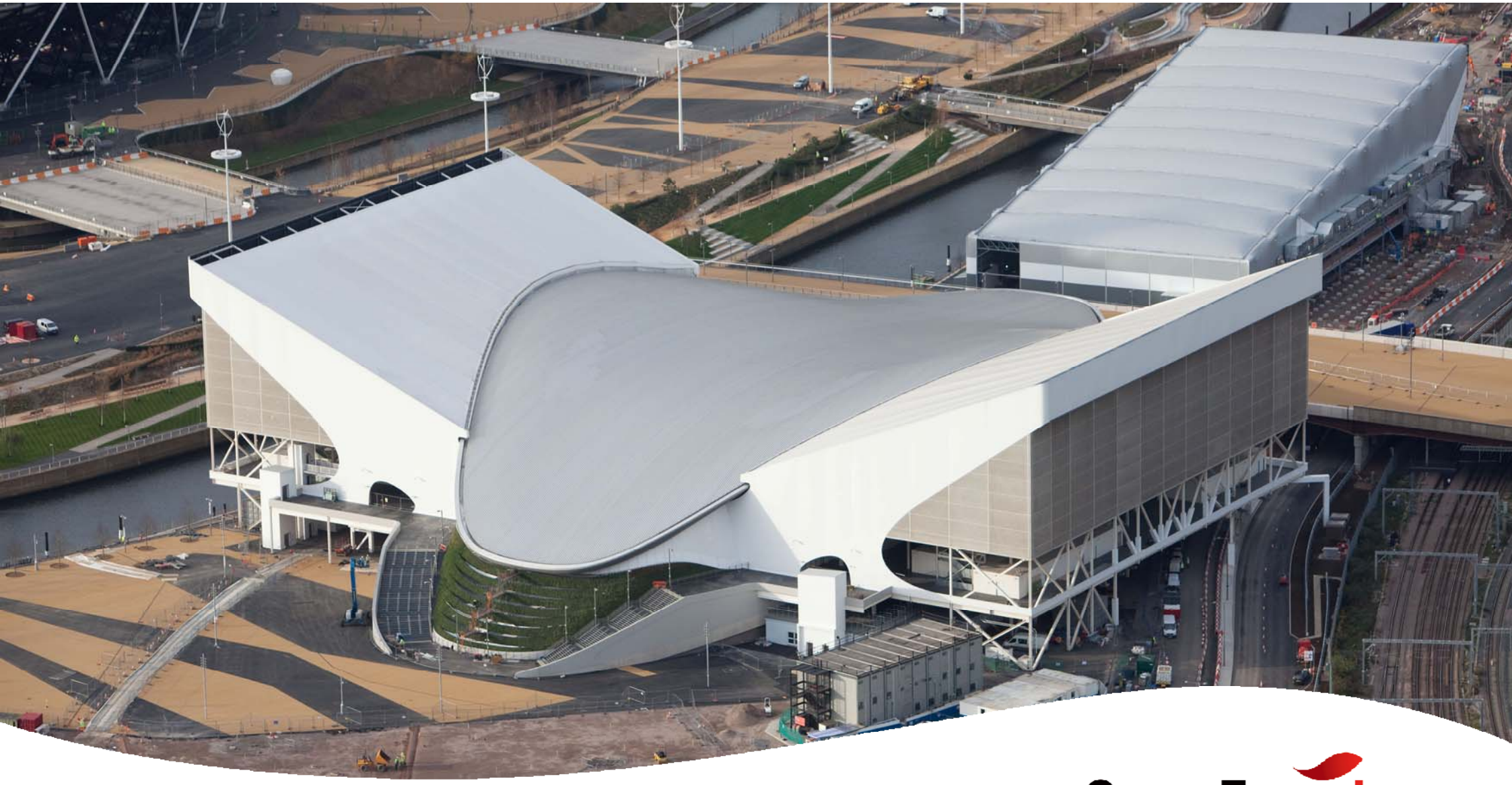

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Serge Ferrari

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Serge Ferrari

Vélodrome
Hopkins Architecture
Contractor : Base structure
Precontraint 392

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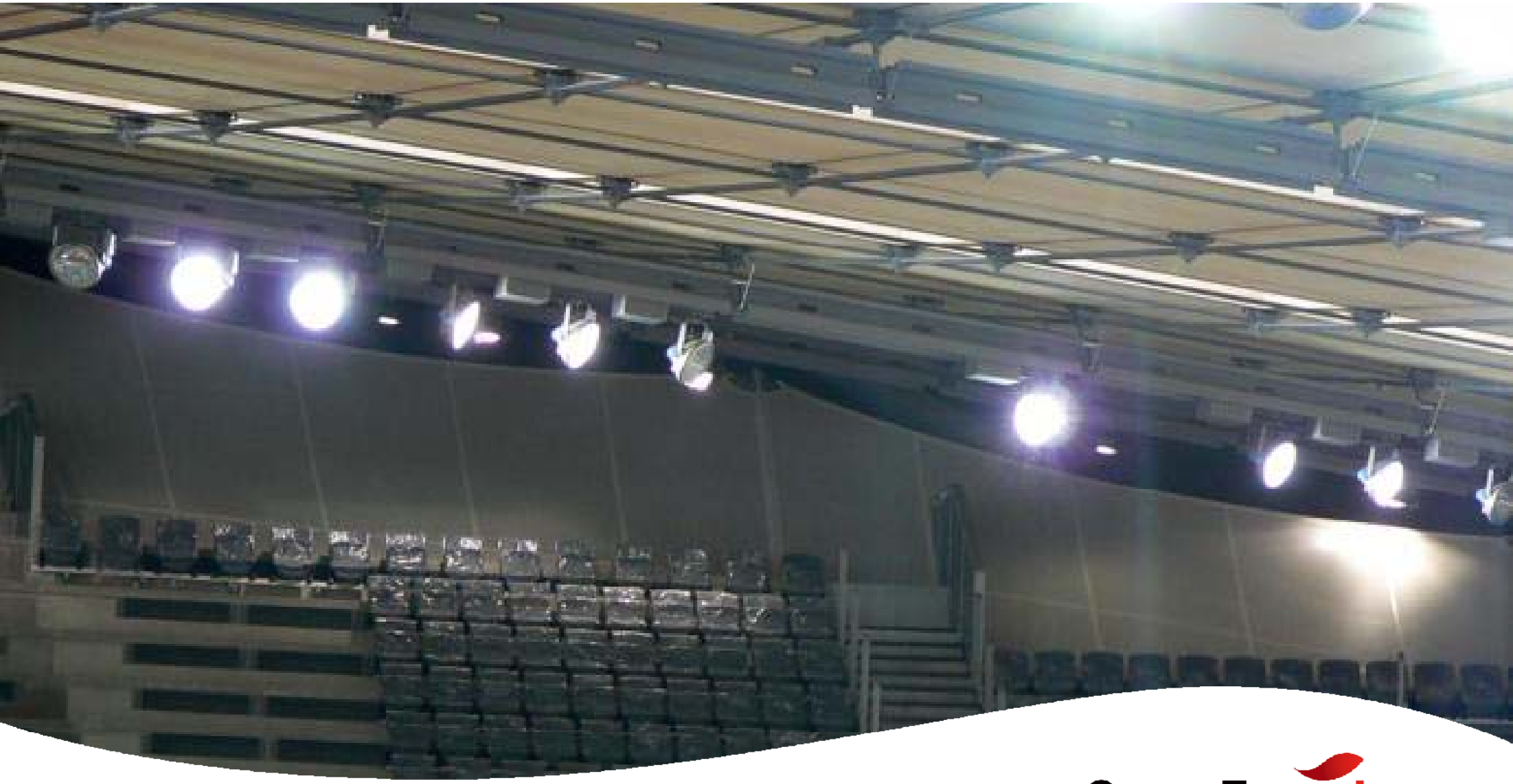

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Royal Artillery Barracks
Magma Architecture SARL
Contractor : Base Structures
Precontraint 1002 S2
Soltis 92
Stamisol FT 371

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Serge Ferrari

Serge Ferrari

Serge Ferrari

Serge Ferrari

Serge Ferrari

Serge Ferrari

Serge Ferrari

Waterpolo Arena
David Morley Architects (DMA)
Eng. Buro Happold
Contractor Architen Landrell
Precontraint 1002 & Soltis 99

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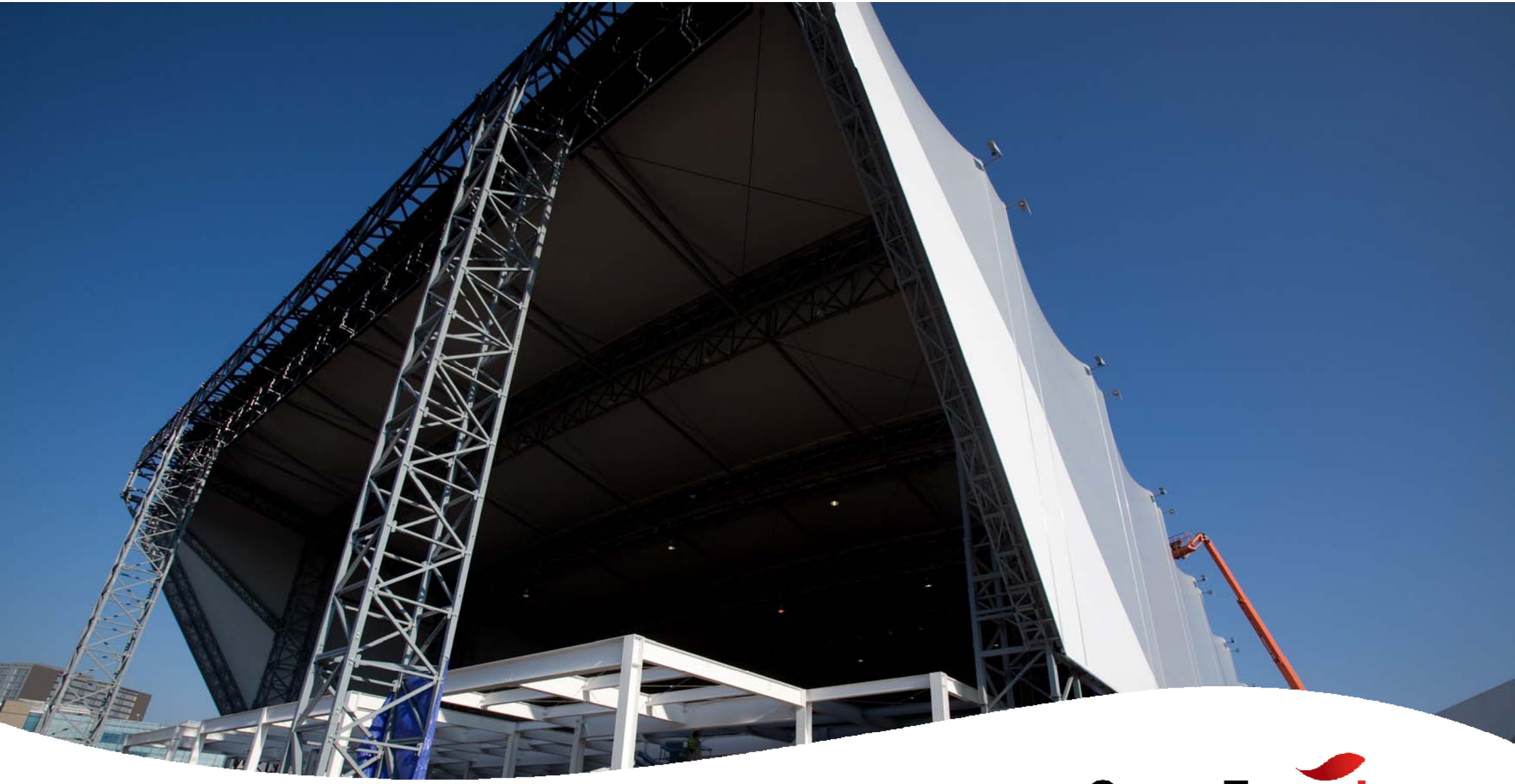
Serge Ferrari



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International Broadcast Center
Allies & Morrison
Architen Landrell Associates
Stamisol 381

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Walkway

Serge Ferrari

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Serge Ferrari

Structures logistics/storage

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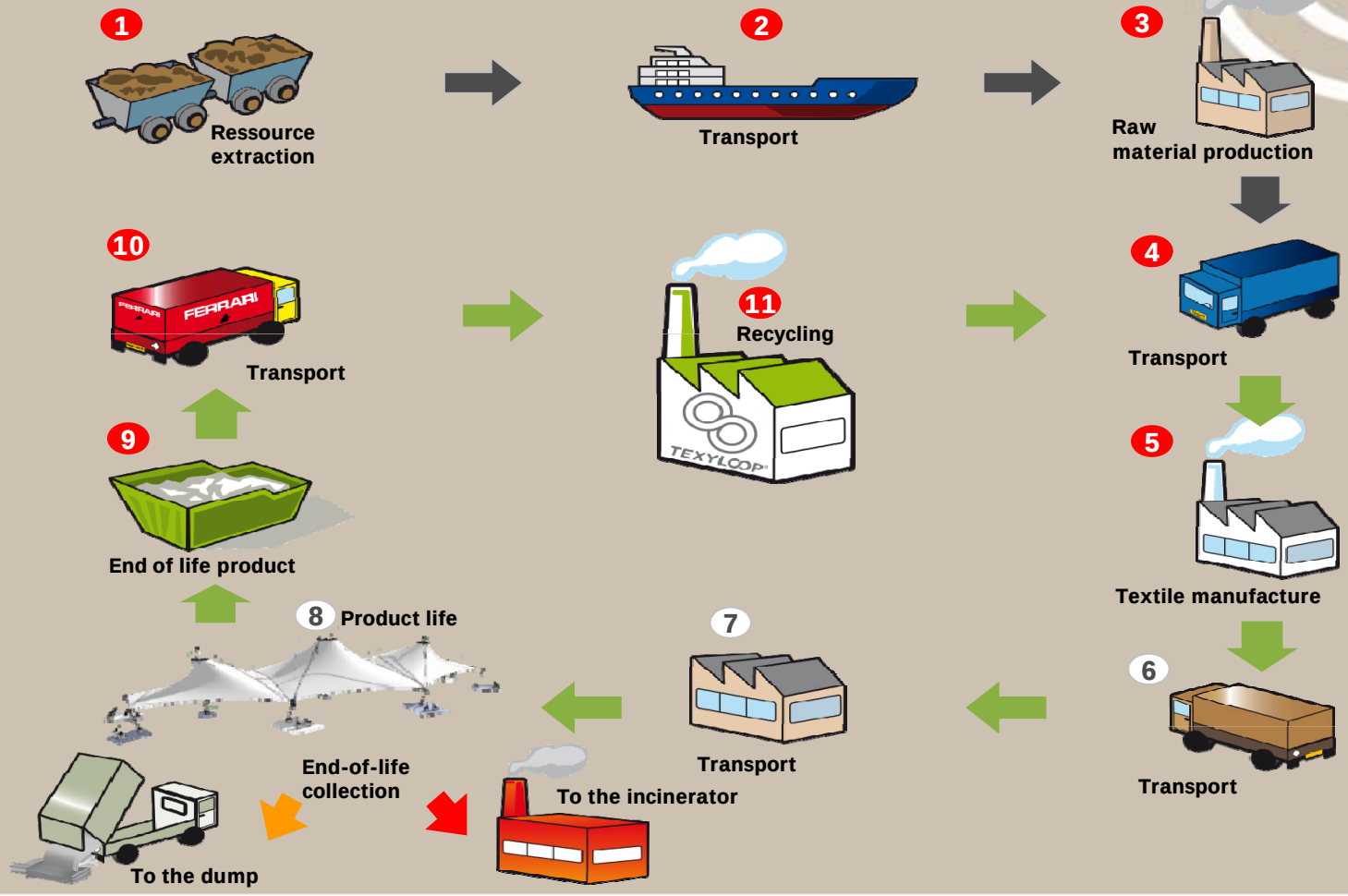
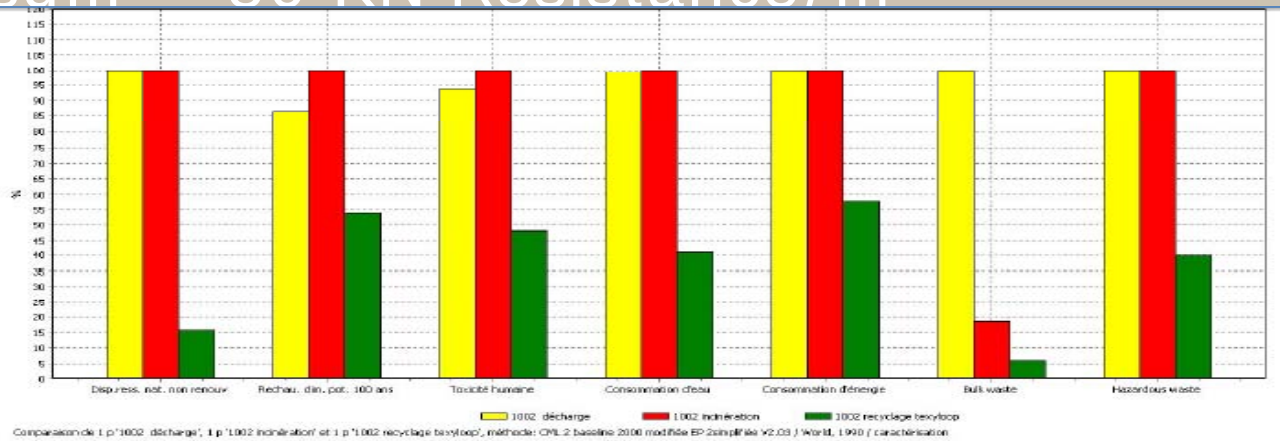
Life Cycle Assessment



Precontraint 1002 / LCA

1050g/sqm - 80 KN Resistance/m



Type of impact	Unit	1002 Landfill	1002 Incineration	1002 Recycled TEXYLOOP®
Ressource depletion	kg Sb eq	0,151	0,151	0,024
Global warming	kg CO2 eq	4,104	4,757	2,572
Human toxicity	kg 1,4-DB eq	1,326	1,414	0,679
Water consumption	litres	339,6	341,3	139,6
Energy Consumption	MJ	103,3	103,3	59,7
Bulk waste	kg	1,358	0,252	0,081
Hazardous waste	kg	0,0029	0,0029	0,0011

TEXYLOOP®
A CLOSELOOP INDUSTRY

FERRARI
architecture

TEXYLOOP PLANT CURRENT CAPACTIY : 4 M SQM / 2000 T PER YEAR

Production of low environmental impact secondary raw materials

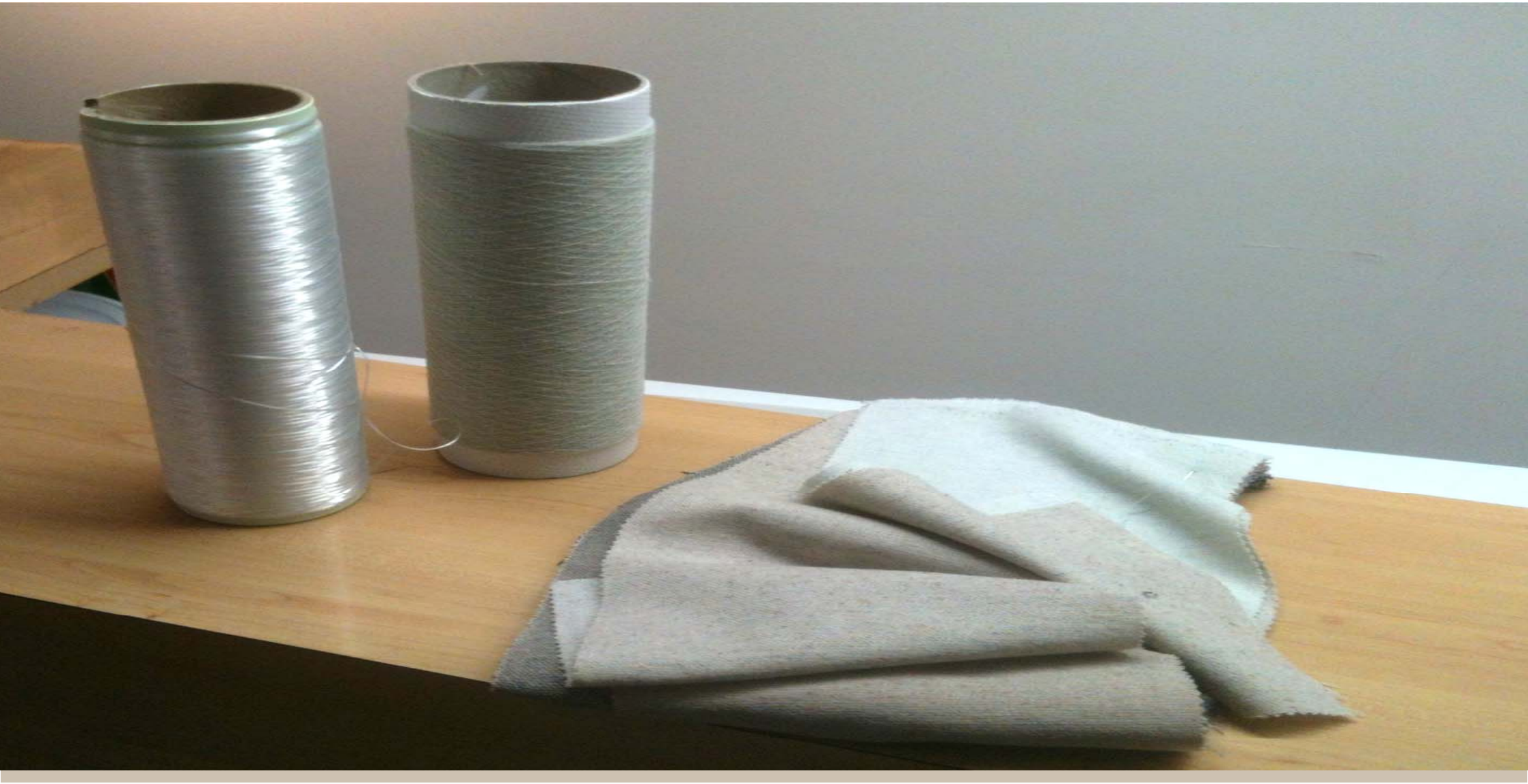
TEXYLOOP®
A CLOSELOOP INDUSTRY

FERRARI
architecture

Non woven material

> Manufacturing a recycled fibre web

> Samples of non woven finished products



TEXYLOOP®
A CLOSELOOP INDUSTRY

FERRARI
architecture

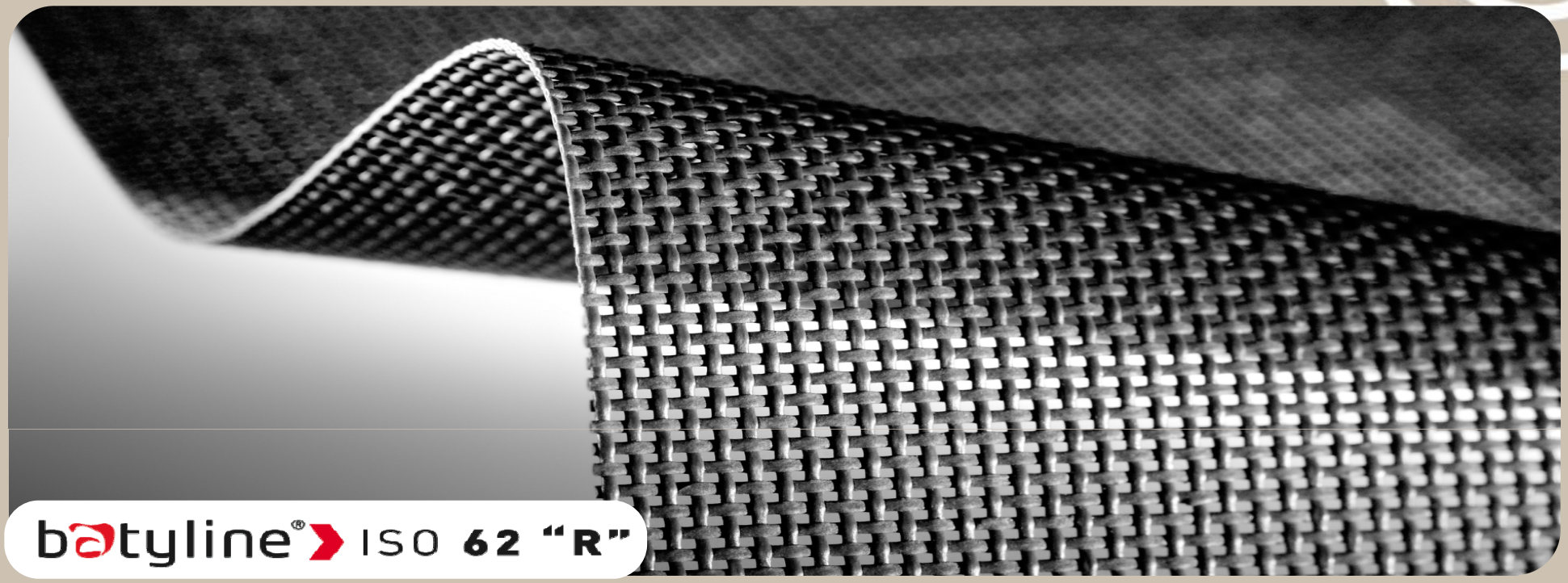
PVC Cords

The new generation of PVC raw material is also used to make extruded cords for bolt ropes, etc…

and PVC eyelets soon?

Batyline® "R"

The new generation of PVC raw material is also used to make Batyline® ISO 62 “R” fabric for furniture applications.



Texyloop® European Charter

• The Texyloop® European Charter constitutes an bona fide undertaking on the part of Texyloop® network members.
• It is signed by all network members.
• It is renewable by tacit agreement each year and is reviewed every three years.
• Use of documents claiming Texyloop® network origin, in particular identifying elements (brand and logotype), is strictly restricted to signatories of this charter.

ARTICLE 1
This charter details the principles and objectives, on and to which the signatories give their binding agreement in view of implementing a policy of recycling Polyester PVC fabrics through the Texyloop® network.

ARTICLE 2
Members of the Texyloop® network act to reconcile economic development, environmental protection and social progress.

ARTICLE 3
Through their initiatives, Texyloop® network members commit themselves to a progressive approach to conserving and enhancing the environment and to limit their impacts.

ARTICLE 4
Aware that recycling is the best way to reduce significantly their environmental impacts*, network members undertake to use recyclable materials whenever possible.
** Life Cycle Analyses conducted on Ferrari® textiles in compliance with ISO Standard 14041-43.*

ARTICLE 5
Network members propose systematically a recycling service for short-term installations.

ARTICLE 6
Network members are capable of designing environmental offers, which may integrate fabric dismantling, collection, sorting and transport to collection points or the Texyloop® recycling facility.

ARTICLE 7
When technically possible, Texyloop® network members propose the use of components resulting from the recycling loop by public or private clients.

ARTICLE 8
Texyloop® network members undertake to provide clear, accurate information on fabric collection conditions and transformation method: recycling or controlled reuse.

ARTICLE 9
Texyloop® network members undertake to facilitate auditing of their fabric collection practice. Furthermore, they undertake to adhere to acceptance criteria applicable to fabric cutting waste and worn fabrics (cf. document entitled "Texyloop® Acceptance Criteria").

ARTICLE 10
Texyloop® network members commit themselves to a communication, awareness and information strategy directed not only towards their partners and clients, but also towards their personnel, which is informed and trained in relation to Texyloop® practices.

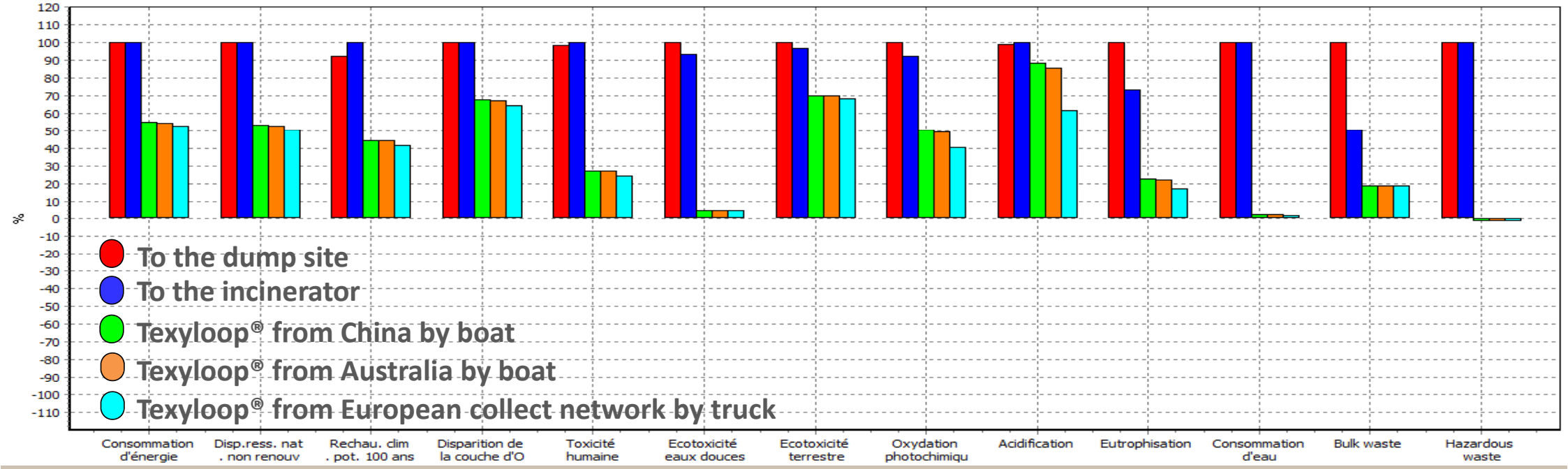
Texyloop® Chairman:

Texyloop® Network Member:
Company:

Manager's Signature:

Drawn up at _____ **On** _____

Measured impacts comparing transport from overseas



TEXYLOOP®
A CLOSELOOP INDUSTRY

FERRARI
architecture

LIGHT WEIGHT STRUCTURE
Is a contribution to
SUSTAINABLE DEVELOPMENT

- **Reduce Material intensity**
- **Increase Functionnal intensity**

EURO 2012

Warsaw stadium retractable roof

JSK Architekten

Schlaich Bergmann & Partner Engineering

Membrane contractor : Hightex gmbh

Précontraint 1202 S2 and 1302 S2.

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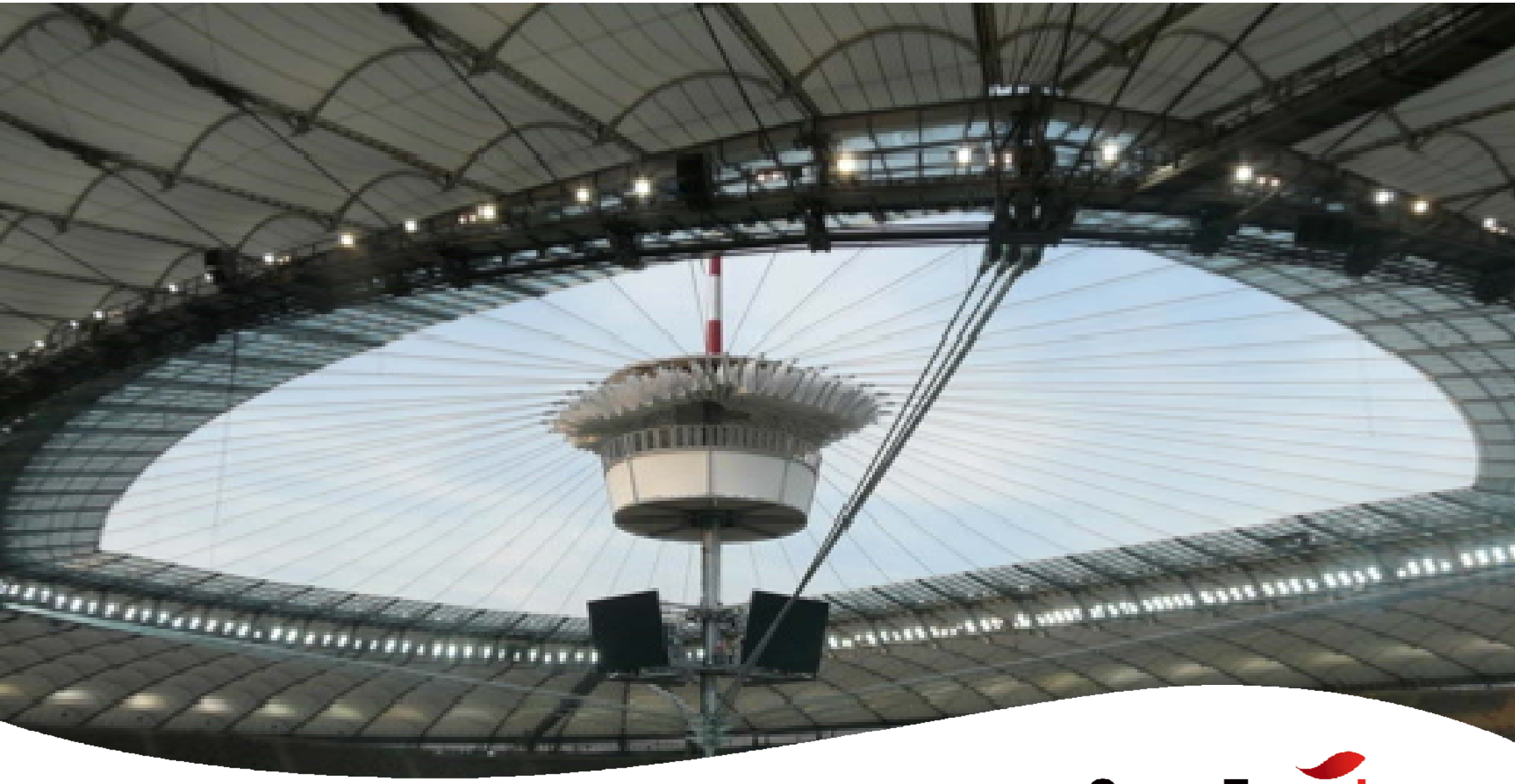

Serge Ferrari

Serge Ferrari

Serge Ferrari

PAN AMERICAN GAMES 2011

OMNILIFE Stadium – GUADALAJARA

Architects : MASSAUD & POUSET

Lonas LORENZO

Précontraint 1002 Opaque

TEXYLOOP 100 % recyclable textile

Light • Durable • 100% Recyclable solutions

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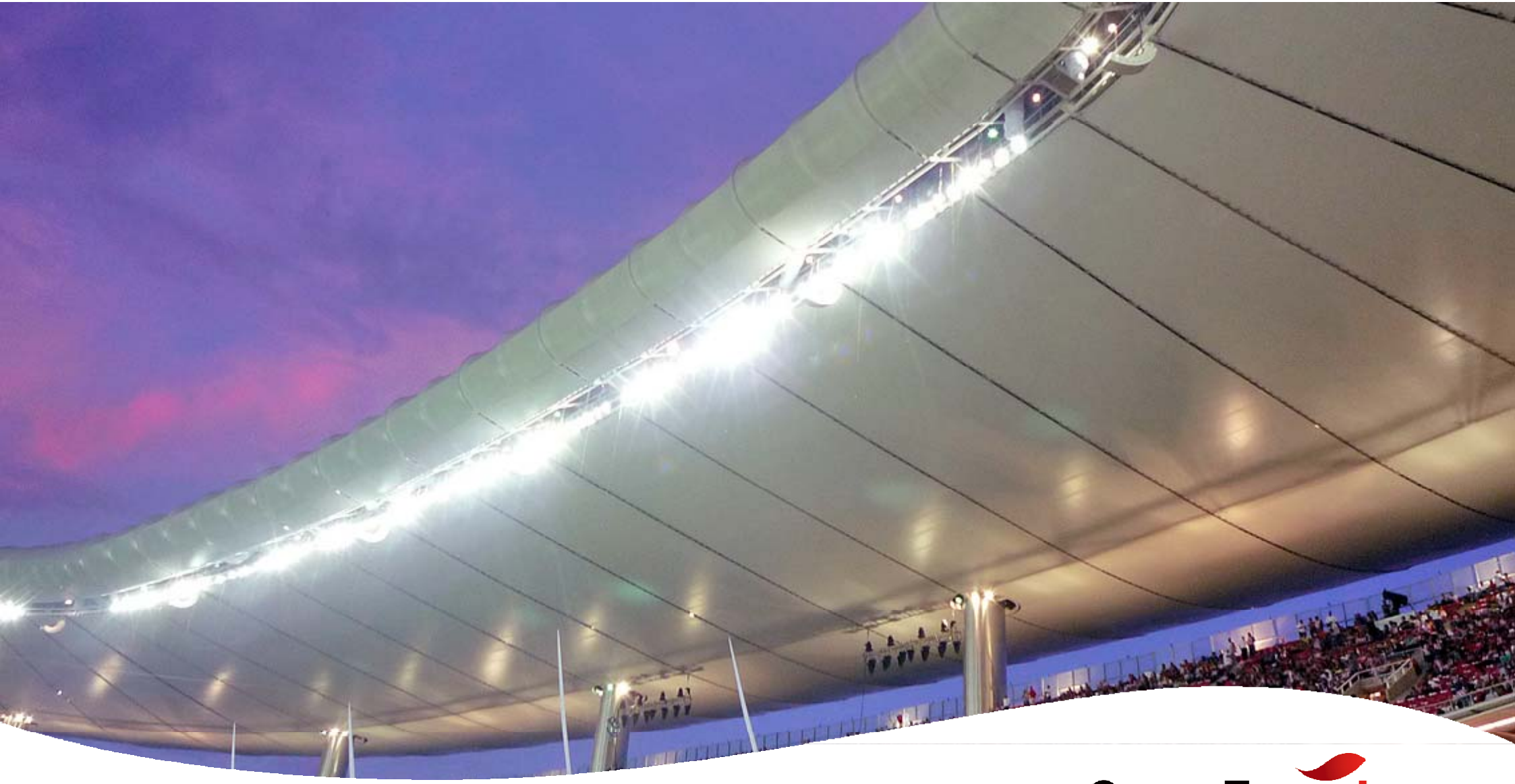
> Stadium Omnilife • Guadalaja, Mexico
Architect: Massaud & Pouset

Serge Ferrari

> Omnilife Stadium • Guadalaja, Mexico
Architect: Massaud & Pouset

Serge Ferrari



> Stadium Omnilife • Guadalaja, Mexico
Architect: Massaud & Pouset

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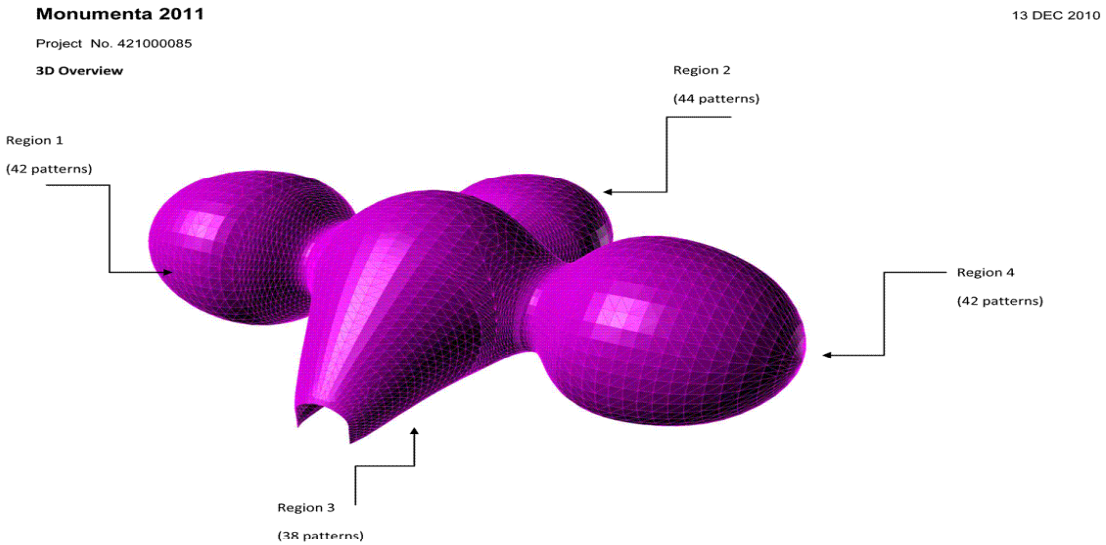
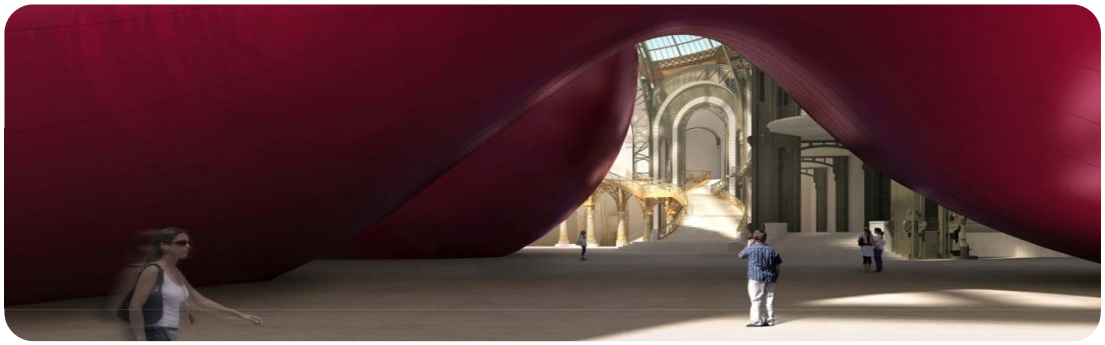
Précontraint® demonstration





"Leviathan" Sculpture - Anish KAPOOR

Monumenta Grand Palais 2011

- 12,000 sqm of Précontraint® 1002
- 100 m Length x 72 m width x 33 m Height
- **Special red colour**:
  Dark by reflexion / Bright red by translucency
- 1 week installation / 40 man crew
- HF welding on site of the 4 pieces
- Approx. 2 hours inflation
  with 2 x 20,000 m^3/hour air generator
- Pressure : 350/400 Pascal
- 1 air lock rotating door

Précontraint® Technology

- Consistency of performance from batch to batch
- Consistency in the compensation values from batch to batch
- Reasonable levels of compensation

Paris - France
Précontraint® 1002 Special red "Leviathan"

Précontraint® demonstration

Précontraint® demonstration

Précontraint® demonstration

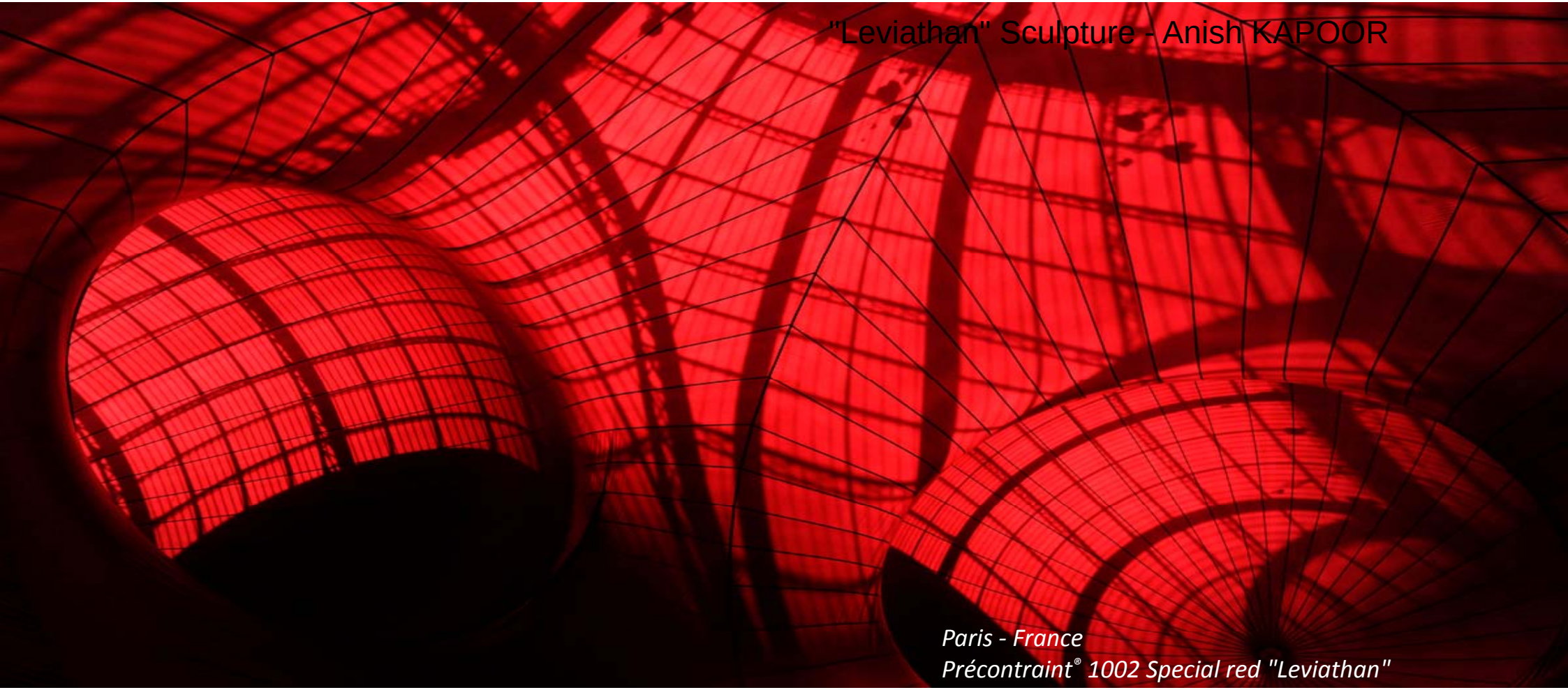
Précontraint® demonstration

"Leviathan" Sculpture - Anish KAPOOR

Paris - France
Précontraint® 1002 Special red "Leviathan"

Précontraint® demonstration

Précontraint® demonstration



Thank you
for your attention