

Education - Training

OLYMPIAN ENAMELLED STEEL

Finding new architectural applications for enamelled steel. Otua is currently encouraging student architects to work on this subject.

"Emailliez vos émotions" ("Enamel your emotions"): this is the slogan of the competition, based on an idea by Carine Bouichou and Philippe Goussélot of Arcelor FCS, launched by Otua at the Batimat exhibition last November to encourage the use of enamelled steel in construction. The competition is based on the creation of an Olympic village.

A prize will be awarded for external architecture (village facade, outdoor furniture, signage...) and another for the interior design (entrance hall, staircase, information point...).

Prizegiving ceremony at the next SEAC in Metz

A technical commission chaired by Dominique Queffélec, the head of Arcora consulting engineers, has shortlisted seven projects from those submitted. The shortlisted projects are from schools in Strasbourg, Nantes and Paris.

The selection of the two prizewinning projects will take place at SEAC (European Exhibition for Steel in Construction) in Metz, on 27 January 2004. The chairman of the jury will be the architect Francis Soler, the exponent of, inter alia, the stainless latticework that will clad the new Ministry of Culture building in Paris (see the Construction section).

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See also the www.otua.org website, "concours des écoles d'architecture".

TURNKEY LESSONS ON STEEL FOR OFFSHORE APPLICATIONS

Otua is contributing, with Total Professeurs Associés (TPA)*, to the publication of fifteen lessons on offshore platforms and wind farms, which will be distributed by APK**.

These lessons are derived to a great extent from the 14 lessons of the ESDEP (European Steel Design Education Program) relating to petroleum developments. They cover offshore technologies, pipelines, the different types of platform and methods of calculation, the selection of the most suitable steels.

They will be distributed in the "cahiers de l'APK" CD-ROMs to teachers and students of steel construction.

In all, fifteen teaching aids are planned over a period of two years. The first was published in December 2003 (APK CD-ROM no. 34). The second will be issued in February 2004. To receive these aids, it is necessary to be a member of APK.

The cost of personal membership is 30 euros per year.

* TPA : a network of experts promoting the petroleum sector in universities and higher-education institutions.

** APK : French Association for the Promotion of the Teaching of Steel Construction, for which Otua provides the secretariat.

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Also, see the website: www.otua.org/APK



Metro station in Brussels

Enamelled steel has it all when it comes to appealing to the construction sector: longevity, cleanability (anti-graffiti), a wide range of colours and textures and the ability to reproduce pictures by serigraphy.

Diary

From 27 to 29 January 04 :

SEAC

(European Exhibition for Steel in Construction) at Metz.

- Awards ceremony for the "Emailliez vos émotions" competition (see the Education-Training section)
- Conference on Bridges and Civil Engineering Structures organised by OTUA and the north-east CETE (Ministry of Public Works Technical Studies Centre). The conference programme is on the Otua website.
- "Acier Force Neuf" exhibition

From 23 to 25 March 04 :

SITS

(International Surface Treatments Exhibition) at Villepinte, near Paris. The team of Surface Treatments experts will be available on the Otua stand to answer all your questions.

24 March 04 :

APK general Assembly

(French Association for the Promotion of the Teaching of Steel Construction) at Millau.

Acier Force Neuf,

the travelling steel exhibition produced by Otua for schools of design and engineering: ENSAM at Metz in January – Ecole des Mines at Nancy, INSA and IUT Strasbourg in March.

We want to hear from you:

YOUR VIEWS ON INFOTUA INTERESTS US !

EMAIL US!

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INFOTUA IS THE OTUA NEWSLETTER PUBLICATION DIRECTORS: SYLVIE PÉTÉTIN AND JOËLLE PONTET COORDINATION AND EDITORIAL: ANNE LE CORNEC TRANSLATION: TOM BISHOP LAYOUT: MR CHARLY PRINTING: ATELIERS DONNADIEU THE ENTIRE OTUA TEAM CONTRIBUTED TO THE PRODUCTION OF THIS ISSUE

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VIEWPOINT

Steel is the victim of a paradox. The diverse and constantly evolving applications to which it is put by its customers and users testify that it is a modern, high-tech and inspiring material. It is also a material that suffers from a grimy, ponderous image, marred by painful redundancy programmes and a "satanic" reputation with regard to the environment.

To my mind, Otua's collective mission is the restoration of a proper appreciation of steel, countering the divergence between its objective characteristics and subjective perceptions of steel and the steel industry.

This requires an in-depth information programme that is both imaginative and subtle. An education campaign operating on two levels: on the rational level, with reference to steel's technical performance, reliability and innovation... and on the emotional level, where one views a material as benign, pleasing, familiar.

We must therefore remind everyone that steel does indeed protect and secure, but also provides comfort and wellbeing in our everyday lives, and that it is the ecological material par excellence, as demonstrated in the Infotua dossier devoted to sustainable development.*

This was the purpose of the Made of Steel campaign. A survey of attitudes towards steel conducted among a sample of 3000 Europeans at the end of the campaign reveals an overall improvement in steel's image in Europe in comparison with other materials. This type of endeavour must therefore be sustained and Otua will make its contribution, particularly through its lobbying, educational and informational activities that remain one of its priorities for the coming year.

I wish you a year crowned with success, flair and style... In short, a year made of steel.

Pierre Bourrier,

SENIOR VICE-PRESIDENT CONSTRUCTION, ARCELOR.

* Dossier available on the Otua website.

Website Hits

<http://www.otua.org>

THE NEW OTUA WEBSITE IS ONLINE!

It's done, the Otua website has been redesigned. More ergonomic and more user-friendly, www.otua.org offers a more direct route to information, thanks to a horizontal menu bar with drop-down menus and highlighting of news on the home page.

It also offers steel users exclusive services:

- The "directory of French grades", an exclusive tool that lists more than 3000 grades validated by AFNOR and, for example, enables one to find the equivalent (in accordance with the current Euronorm) of a grade that is no longer available on the market today.

- A section detailing Otua's fields of expertise, containing in particular new pages on construction and on sustainable development applied to steel construction.

- An "All about steel" section with a film to download, snippets of information about steel ("Did you know?"), etc.

- The facility to order and pay online for publications – using an updated catalogue.

And coming soon:

- A database of major bridge and construction projects that are under way.

- A tool that will, for a given use or field of application (for example heat treatment), provide a list of available grades.

Like any self-respecting site, [otua.org](http://www.otua.org) is still under construction and will continue to develop to meet your needs as closely as possible, so please feel free to send us your comments and suggestions.

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Infotua thematic case studies:

this is another new feature of the website, in the Publications section. Case study no. 1 is devoted to sustainable development and the solutions that steel provides to this issue which is now international, more specifically in the field of construction.

■ Bridges and civil engineering structures

STEEL AND CONCRETE HAND IN HAND AT MEAUX

On 9 October 2003, in conjunction with Cimbéton, its counterpart for the promotion of cement, Otua organised a technical event based on the Meaux viaduct, in France's Seine-et-Marne department. A major first, this joint action was especially appropriate as the viaduct illustrates in a particularly innovative manner the efficacy of the marriage of steel and concrete.



The girder with a plano-tubular web, consisting of alternating tubes and steel plates, is a Razel invention protected by a European patent. It enables traditional vertical stiffeners to be dispensed with.

Work on the construction site began in 2001. The plan: to relieve traffic congestion in Meaux by the construction of a 6.5 km stretch of motorway by-passing the city.

The centrepiece of this massive project, in 2005 the 1200 metre long viaduct will cross the Marne valley. Invited jointly by Otua and Cimbéton, 150 people came to discover, through this exceptional project, the advantages of the composite steel-concrete solution. Those represented included the Ministry of Public Works, departmental General Councils, the Public Works Research Laboratory, civil engineering and steel construction companies, the Departmental Infrastructure Agency, French Railways and the press.

What's needed, where it's needed

Innovation was one of the determinant criteria in the invitation to tender. It is furnished here by the novel deck design: a girder with a plano-tubular web structure connecting the upper and lower prestressed concrete slabs. Consisting of a series of flat steel plates and steel tubes with a vertical axis, these webs give the structure lightness and rigidity, and therefore an extremely high mechanical efficiency. The advantage of combining steel and concrete is that each material can be employed to best advantage, in the places where it is the most efficient, for an optimal solution to all requirements: strength, weight reduction, appearance, cost.

Another advantage, in terms of costs, safety and lead times: the deck is prefabricated in sections in a nearby factory, then assembled by pushing. So in due course Meaux will hold the world pushing record for a highway structure: 54,000 tonnes.

KEY FACTS ABOUT THE VIADUCT

Length: 1200 metres Height: 30 metres. Steel: 2,900 tonnes
Cost: million euros including taxes
Project finance: the French State (30%) and the Ile-de-France Region (70%)
Developer: Seine-et-Marne Departmental Infrastructure Agency
Architect: Berdj Mikaelian
Construction: Entreprises Razel and DSD SECOMETAL

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See also the articles that appeared in the press following the visit organised by Otua and Cimbéton: Le Moniteur des TP et du Bâtiment (issue 5217 of 21/11/2003), Rail et transports (issue 304 of 29/11/2003), international press (January 2004).

To access the papers presented at this event, see the www.otua.org website, where there is, in particular, a film to download

STEEL IS INDISPENSABLE FOR HST LINE BRIDGES IN SPAIN

At least, that is the opinion of the Spanish Minister of Public Works, Francisco Alvarez-Cascos Fernandez, whose country will, in 2020, have one of the largest high-speed rail networks.

"For the construction of the 7000 kilometres of the new network, steel plays a decisive, indispensable, irreplaceable role," he stresses. And in particular for the construction of the 400 km of bridges that are required. In this field, Spanish design offices are beginning to opt for composite steel-concrete solutions. A choice with which Otua is not unfamiliar.

Technology transfer to Spain

In fact, Otua has been promoting innovative steel solutions to our Iberian neighbours for more than two years through its publications (great success of the steel bridges review Ponts Métalliques N°19 devoted to the civil engineering structures for the TGV Méditerranée and translated into Spanish), conferences, and the organisation of technical events. Otua also invited 70 members of the Spanish Ministry of Public Works for a three-day study trip in May 2001 of the composite bridges for the TGV Méditerranée. We can see today that all these actions have borne fruit.

Otua has just produced a film intended for the Spanish protagonists (government bodies, design offices, consulting engineers...), which highlights the advantages of steel as a sole material or composite solution for HST steel bridges. It earned Otua a "Roc d'or" (in the Development and Property category) at Fimbacte 2003, the French corporate film festival. The film is available in Spanish, French and English versions and can be obtained from Otua.



This very long span steel arch bridge, under construction in Zaragoza, illustrates the progress made by steel in HST bridges in Spain.

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■ Construction

CULTURE WITH A STAINLESS FACADE

The brief was difficult: to re clad an old building disfigured by successive alterations to make it a symbol of Culture in one of the most historic quarters of Paris. Stainless steel took up the challenge.

For this rehabilitation of the building housing all the departmental headquarters of the Ministry of Culture, bold innovation and creativity were called for. Elegance too; the location demands it: rue Saint Honoré, in Paris, near the Palais Royal and the Comédie Française. The idea of the architect, Francis Soler, was to cover the fully-glazed facade with an openwork metal skin, resembling a mashrabiyya. This cladding has a dual purpose: to overlay the earlier architectural inconsistencies and to screen the occupants from outside view.

The solution adopted: a 10 mm thick laser-cut stainless steel fascia (weighing a total of 420 tonnes). A duplex grade was chosen, in this case Uranus 35N (an Industeel product), selected for its excellent resistance to corrosive urban atmospheres, its elevated mechanical properties, and of course its bright surface finish. Make a date in mid-2004 to admire in situ this innovative work that Otua will not fail to highlight in its promotion of steel and architecture

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BATIMAT STIMULATES THE IMAGINATION

What if one of the symptoms of intelligent life was the greater incorporation of steel into interior design?

This is what Otua wished to demonstrate on the stand of the FNSAI (National Federation of Interior Architects' Associations), at the Batimat exhibition from 3 to 8 November 2003. A stand christened "Living smart", under the sponsorship of "Made of steel"*, exhibited various concepts of the dwelling of the future. Otua organised several conferences on the theme of steel in the home:

- A visionary stainless steel kitchen for the 3rd millennium ("2 zones" project)
- Enamelled steel and architecture
- "Anti-fingerprint" stainless

And finally a round table entitled: "From disposable to durable, stainless steel, a new idea", moderated by François Moulinier, head of ID Inox, the organisation for the promotion of stainless steel in France.

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And <http://www.fnsai.com>, in the "FNSAI Promotio" section

*name given by a consortium of eight European steelmakers to a steel image campaign targeted at the general public, conducted in Europe from 2001 to 2003.



On the building's facade, the ornate stainless steel skin creates a calligraphic effect on the glass. An outstanding example of successful integration for steel.

■ Events

INTERNATIONAL FORUM

At the International Steelmaking Conference in December, organised annually by ATS (French Steel Industry Technical Association), Otua led the scientific element of three sessions on:

- **steel bridges:** new trends and new markets, railway bridges, bridge renovation and replacement, bridges in extreme climatic situations...
- **steel buildings:** design, rehabilitation, performance optimisation, fire safety...
- **steel and sustainable development in construction:** complete environmental impact assessment of a building, waste recycling, dismantling of structures, earthquake resistance, environmental advantages of stainless steel...

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To download speakers' papers abstracts, see the www.otua.org website.

■ Just out at Otua

■ The magazine **Acier Pour Construire** (APC) **no. 79**, published in December 2003. Editorial by Claude de Gelas, Director of the Steel Construction division of Fayat, the European leader in steel construction (Turnover: € 250 million – 7500 employees) and a member of Otua.

■ "**Cahiers de l'APK**" CD-ROM **no. 34** (French Association for the Promotion of the Teaching of Steel Construction) with a special **offshore** chapter (see the Education-Training section).

■ "**L'acier, sa fabrication, ses propriétés, sa mise en œuvre, ses emplois**". A work by Louis Roesch, ex-Irsid and ex-Otua engineer, intended for students and tutors at schools of engineering, new recruits to the steel industry and all those who wish to know more about steel – 204 Pages – 45 €.

■ The **steel bridges review Ponts métalliques**, no. 22, devoted to arch bridges, which in the last few years have been making a spectacular return in civil engineering structures.

■ The DVD "**Les musiques de l'acier**" ("Steel music"): a film of unconventional acoustic experiments (sculptural concert, steel drum and other novel steel melodies).

■ "**Innovation**": a 26-minute film about HST steel bridges in Spain (see the Bridges and Civil Engineering Structures section)

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