European Convention for Constructional Steelwork ECCS | CECM | EKS
32, Avenue des Ombrages | B - 1200 Brussels | Tel. 0032.2.762.04.29 | eccs@steelconstruct.com

ECCS Press-Release | 18.07.2013

European Steel Design Awards 2013

Outstanding design in steel construction emphasizes the many advantages of steel in construction, production, economy and architecture. The European Steel Design Awards are given by the European Convention for Constructional Steelwork (ECCS) every two years to encourage the creative and outstanding use of steel in architecture and construction.

Steel offers new solutions and opportunities, allowing architects and engineers to stretch their imagination and actually create some of the challenging structures. Structural steel is low cost, strength, durability, design flexibility, adaptability, recyclability and sustainability making it the material of choice in building construction. Within the European Steel Design Awards, the most outstanding European projects can be evaluated and brought to a larger, international audience – throughout their publication and the distinction of their creators and mentors.

The awards are therefore dedicated to the owner, the architects, the engineers and the steelwork contractor of one outstanding national project per member country in order to esteem their collaboration and the excellence of their work. The national member has evaluated the submitted projects within a professional jury and selected one as the national winner of ECCS Design Award 2013. ECCS has approved these entries according to the criteria and Award Regulations.

The European Convention for Constructional Steelwork has the pleasure to present the following projects for ECCS Steel Design Awards 2013.

European Student Awards 2013

The Student Awards for Steel Design are a subcategory of European Steel Design Awards. The objective is to give European recognition to outstanding student projects in architectural design using structural steel as a prominent architectural feature. The rules are similar to the Steel Design Awards. The following national student projects have been awarded. (see last pages)

Publication

The ECCS Steel Design Awards 2013 as well as the student awards are published on ECCS website: www.steelconstruct.com see > Steel Architecture > Design Awards

The photographical material is copyright-free for press-release and publication referring to ECCS Steel Design Awards (no advertising). The describing texts are authorised by the national jury and can be used within the publication. For further information, please contact the national Association (see contact project).

Awards Ceremony

The 2013 Award winning projects of 13 European countries will been presented to an international audience within the European Steel Construction Day 2013 in Milano during the Construction Fair MADE expo 2013 (October 3rd, 2013). Further information and inscription: www.acaiacs.it

Press-Release: Evelyn C. Frisch, SZS | Chairperson MC01 Design Awards and Architecture | frisch@szs.ch

1. AUSTRIA

Central Railway Station Salzburg, 2012

Location	Salzburg (A)
Client	ÖBB Infrastruktur AG, Vienna
Architects	kadawittfeldarchitektur, Aachen (D)
Engineers	Werner Consult Ziviltechnikergesellschaft m.b.H., Vienna
Steelwork	Zeman & Co GmbH., Vienna
Press contact	ÖSTV – Österreichischer Stahlbauverband | georg.matzner@fmmi.at

2. CZECH REPUBLIC

Bridge accross the Lochkov Valley, Prague, 2010

Location	Prague (CZ)
Client/Owner	Reditelstvi silnic a dalnic CR, Prague
Architects	Ing. Arch. Patrik Kotas and Ing. Arch. Petr Safranek., Brno
Engineers	Bögl a Krýsl kom. spol., Prague
Steelwork	Max Bögl Stahl und Anlagenbau / MCE Slaný s.r.o., Neumarkt (D)
Press contact	CAOK – Czech Constructional Steelwork Association | janda@caok.cz

3. FRANCE

Stade de Lille, 2012

Location	Lille (F)
Client	ELISA, Villeneuve d'Ascq
Architects	Valode et Pistre, Paris
Engineers	GREISH, Liège (B)
Steelwork	EIFFAGE CONSTRUCTION METALLIQUE, Colombes Cedex
Press contact	SCMF – Syndicat de la Construction Métallique de France | jlgauliard@scmf.com.fr

4. GERMANY

Bharati, New Indian Research Station, Antarctica, 2012

Location	Larsemann Hills, Antarctica
Client	NCAOR - National Centre for Antarctic & Ocean Research, Ministry of Earth Sciences, Goa (India)
Architects	bof architekten, Hamburg (D)
Engineers	IMS Ingenieurgesellschaft mbH, Hamburg (D)
Contractor	KAEFER Construction GmbH, Bremen(D)
Steelwork	Heinrich Lamparter Stahlbau GmbH & Co. KG, Kaufungen (D)
Press contact	Bauforumstahl e.V. | angelika.demmer@bauforumstahl.de

5. HUNGARY

Kopitnari International Airport, 2012

Location	Kutaisi, Georgia
Client	United Airports of Georgia LLC, Tbilisi, Georgia
Architects	UNStudio, Amsterdam (NL)
Engineers	CEOS, Civil Engineering and Consulting Ltd. and M.T.M. Markovits, Civil Engineering and Consulting Ltd. Budapest (HU)
Steelwork	Rutin Ltd. Dombóvár (HU)
Press contact	MAGESZ – Hungarian Steel Association | ldunai@epito.bme.hu | kvarnai@ce-os.eu

6. ITALY

New High Speed Railway Station, Turin Porta Susa, 2013

Location	Turin, Italy
Client	RFI – Ferrovie dello Stato Italiane, Turin
Architects/	AREP, Paris (J.M. Duthilleul, E. Tricaud) – Silvio D'Ascia Architecte
Engineers	together with prof. arch. Agostino Magnaghi
Steelwork	BIT, Cordignano (TV
Press contact	ACAI – The Italian Association of Steel Constructors | isa.zangrando@acaiacs.it

7. LUXEMBOURG

CCK Centre de Conférence Kirchberg, Luxembourg-Kirchberg, 2012

Location	Luxembourg Kirchberg
Client	Administration Travaux Publics, Luxembourg
Architects	Schemel Wirtz, Luxembourg and Jourdan and Müller PAS, Frankfurt (D)
Engineers	INCA, Niederanven | SGI, Luxembourg
Steelwork	CLE et Spannverbund, Strassen | Roedt CDCL et Mabilux, Leudelange
Press contact	ILTM – Industrie Luxembourgeoise de la Technologie du Métal | mona_douale@cle.lu

8. NETHERLANDS

Platform canopies and Pedestrian bridge, Arnhem Central Station, 2013

Location	Arnhem (NL)
Client	Prorail Nieuwbouw, Utrecht (NL)
Architects	UNStudio, Amsterdam
Steelwork	Buiting Machinebouw & Staalconstructie B.V., Almelo (NL)
Engineers	Movares Nederland B.V.
Main contractor	BAM – Dura Vermeer
Press contact	SNS – Samenwerkende Nederlandse Staalbouw | vasquez@staalbouw.net

9. NORWAY

Trollstigen National Tourist Route, 2013

Location	Trollstigen – Tourist Route
Client	Statens vegvesen, Nasjonal Turistveger, Oslo
Architects	Reiulf Ramstad Arkitekter AS, Oslo
Engineers	Dr Techn. Kristoffer Apeland AS, Oslo
Steelwork	Christie og Opsal AS, Molde (NO)
Press contact	NSA – Norsk Stalvorbund | post@stalforbund.com

10. PORTUGAL

Arena Fonte Nova Stadium, Salvador da Baia, Brazil, 2013

Location	Salvador da Baia, Brazil
Client	Fonte Nova Negócios e Participações S/A– FNP, Salvador, Bahia
Architects	Schulitz + Partner Architekten BDA, Braunschweig (D)
Engineers	RFR Ingenieure GmbH, Stuttgart (D)
Contractors	Consortium ARENA SALVADOR, formed by ODEBRECHT and OAS, Salvador, Bahia
Steelwork	Martifer Construções Metálicas, Lda
Press contact	CMM – Portuguese Steelwork Association | cmm@cmm.pt

11. SWEDEN

The Tullhus Bridge, 2012

Location	Norrköping, Sweden
Client	Norrköpings kommun, Norrköping
Architects	Erik Andersson Architects, Stockholm
Engineers	Ramböll Sweden, Luleå
Steelwork	Lecor Stålteknik, Kungälv
Press contact	SBI – Stalbyggnadsinstitutet | lars@sbi.se

12. SWITZERLAND

Bridge Hans Wilsdorf, Geneva, 2012

Location	Geneva
Client	Fondation Hans Wilsdorf, Carouge, Geneva
Architects	Atelier d'architecture Brodbeck-Roulet, Carouge, Geneva
Engineers	Amsler & Bombeli Associés, Chêne-Bougeries
Steelwork	Zwahlen & Mayr, Aigle
Press contact	SZS – Stahlbau Zentrum Schweiz | Swiss Institute for Steel Construction | frisch@szs.ch

13. TURKEY

Steel Radar Towers, Izmit

Location	Izmit, Turkey Izmir (11 units); Izmit (3 units), Mersin-Iskenderun (7 units); Marmara Region (3 units)
Client	Republic of Turkey | Ministry of Transportation, Shipping, and Communication, Ankara
Architects	Ragip Buluc Architects, Ankara
Engineers	Burkay Proje Mimarlik Mühendislik, Ankara
Steelwork	Üçgen Insaat Denizcilik Sanayi ve Ticaret Ltd. Sti., Istanbul
Press contact	TUCSA – Turk Yapisal Celik Dernegi | berna@tucsa.org

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Following detailed description and documentation of the projects by country in alphabetic order

1. AUSTRIA

Central Railway Station Salzburg, 2012

Location	Salzburg (A)
Client	ÖBB Infrastruktur AG, Vienna
Architects	kadawittfeldarchitektur, Aachen (D)
Engineers	Werner Consult Ziviltechnikergesellschaft mbH., Vienna
Steelwork	Zeman & Co GmbH, Vienna Sub-contractors for roof panelling: SK Stahlbau GmbH, CENO Membrane Technology GmbH, JNS Dachtechnik GmbH

Description

The central railway station of Salzburg has been a dead-end station up to 2010. Approximately 25,000 passengers per day (with estimated 35,000 passengers in 2020) needed a higher available capacity. This was achieved by four additional tracks and the modification from a dead-end station to continuous tracks. At the same time a large-area roof (covering all platforms and tracks with high lucency and natural light) instead of the existing single platform roofs were erected to achieve higher passenger comfort. This took place necessarily under observance of the monument protected unique historical steel construction and today´s safety requirements of modern railway stations. All construction works took place during full railway traffic.

The project shows the possibility to integrate historical constructions from the 19th century with outstanding architectural structures from the 21st century in a successful manner. The project shows the spectrum of steelwork technologies from handcraft (like restoration of historical constructions) up to new innovative technologies (like the beams). The sustainability of structural steelwork can be shown in an impressive way. Today´s requirements of fire safety could be achieved in an economic way without using expensive and maintenance intensive fire protection coatings.

Completion date	13th of July 2012
Dimensions	Area of thin roofs (standing seam roof and aluminium composite bottom): 15.000 m^2 Area of membrane roofs (ETFE): 7.000 m^2 Dimensions of the large area roof: 330 x 80 m; Area of membrane roofs 7'000 m^2
Tonnage	Weight of the bearing structural steelwork: 3'600 t
Main structure	New large area roof: Span of the main beams up to 52m with a construction height of only one meter (partly usage of SIN beams). In answer to the historical construction partly three-dimensional arched including warping.
Fire safety	Fire resistance of the steel construction during 30 min. against fire load (burning passenger coach). Verification of the fire resistance requirements achieved by structural fire design according to Eurocode and systematic melting of roof parts. Execution of the large area roof without applying any fire protection coating.
Sustainability	Successful link between conserved structural steelwork from the 19th century and the construction type and requirements of the 21st century.
Contact	DI Georg Matzner | Österreichischer Stahlbauverband | +43 1 503 94 74 | georg.matzner@fmmi.at

2. CZECH REPUBLIC


Bridge accross the Lochkov Valley, Prague, 2010

Location	Prague (CZ)
Client/Owner	Reditelstvi silnic a dalnic CR, Prague
Architects	Ing. Arch. Patrik Kotas and Ing. Arch. Petr Safranek., Brno
Engineers	Bögl a Krýsl kom. spol., Prague
Steelwork	Max Bögl Stahl und Anlagenbau / MCE Slaný s.r.o., Neumarkt (D)

Description

Bridge across the Lochkov Valley is situated on south-west periphery of the Prague Ring Road and crosses the deep valley at a height of 63 m. The central span of the bridge is supported by slanted concrete struts that are being cast in temporarily suspended cantilevers. The composite deck is formed by one cell box girder with large overhangs supported by steel struts. The core of the bridge is the middle section with its two 57° inclined pillars. These have been re-anchored during the construction phase by tendons and completed by means of climbing formwork. The superstructure running in parallel, made of about 4'800 tons of structural steel, has been welded together with 26 partly prefabricated elements in the casting bed and launched in eleven steps.

Through an optimized implementation of all materials, a high quality and modern composite bridge resulted, also setting new standards under the aesthetical, technical and also economical point of view.

Completion date	20th September 2010
Dimensions	Total length 461m, length steel construction 425.30 m
Tonnage	4723.8 t steel structures
Main structure	The whole bridge is in a plan curvature with radius of 747.5 m, in longitudinal slope of 2.4% and transverse slope of 4%. The bridge is formed by a strutted frame of span of 157.103 m, with the five spans deck of 70 + 79.85 + 99.30 + 93.85 + 80.50 m a
National jury	The project "Bridge across the Lochkov Valley" was approved by Czech Constructional Steelwork Association. Mr. Marek Janda, Secretary General
Press contact	CAOK – Czech Constructional Steelwork Association | janda@caok.cz

3. FRANCE

Stade de Lille, 2012

Location	Lille (F)
Client	ELISA, Villeneuve d'Ascq
Architects	Valode et Pistre, Paris
Engineers	GREISH, Liège (B)
Steelwork	EIFFAGE CONSTRUCTION METALLIQUE, Colombes Cedex

Description

This 50'000-seat stadium can host live entertainment in a showcase configuration. This conversion is made possible by an opening roof and a platform supporting half the pitch, which can be retracted to create an ideal space for indoor sports and live shows for 30'000 people.

This structure is technically innovative in its optimised use of steel. The complete (static and moving) roof structure is supported by two prestressed steel megabeams. Each one has a span of 205 m, 16.35 m high and 1'800 tonnes weighs. The megabeams and roof sections (total weigh of 7'200 tonnes) were assembled on the ground and then lifted 25 m into the air by a system of towers and strandjacks.
The megabeams do not obstruct the spectators' view, as their lowest points are above the level of the highest tiers. Despite their compact height, these megabeams are very stiff, enabling the four sliding roof sections (2,000 tonnes weigh) to roll along them when the roof is being closed. This performance was achieved by incorporating five 55T15 prestressing cables into the lower flange.
For acoustic reasons, only the lower half of the megabeams is visible (the top half being concealed behind panelling). The bottom half exposes the highly architectural assembly method featuring butterfly gusset plates and very attractive 300 mm diameter broaching pins. The compressed upper part economically consists of a series of follow sections that transmit the 6000-tonne compressive load by direct contact. The S 460 steel box sections were adjusted with the necessary precision using large shaping machines at our plant on the banks of the Rhine in Lauterbourg (east of France).

No fewer than eight of the EIFFAGE Metal division's European plants contributed to the stadium, especially those located in the UK, Germany and Spain. The technical innovations resulting in unobstructed views from every seat in an enclosed space that covers three and a half hectares with no visible pillars are a crowning achievement for the steel construction business and architecture.

Completion date	18th August 2012
Dimensions	265 x 120 m | Tonnage 12'000 t
Main structure	Two prestressed steel beams each 1800 t; span 205 m, supporting an opening steel roof
Fire safety	no protection
Sustainability	Shipping transportation from EIFFEL plant in Lauterbourg on Rhin river, timber secondary roof beams
National jury and contact	Jean-Louis Gauliard, Secrétaire Général SCMF Syndicat de la Construction Métallique de France | Puteaux Cedex | Tel. +33 1 47 74 66 15 | jlgauliard@scmf.com.fr

4. GERMANY


Bharati, New Indian Research Station, Antarctica, 2012

Location	Larsemann Hills, Antarctica
Client	NCAOR - National Centre for Antarctic & Ocean Research, Ministry of Earth Sciences, Goa (India)
Architects	bof architekten, Hamburg (D)
Engineers	IMS Ingenieurgesellschaft mbH, Hamburg (D)
Contractor	KAEFER Construction GmbH, Bremen(D)
Steelwork	Heinrich Lamparter Stahlbau GmbH & Co. KG, Kaufungen (D)

Description

This design shows how steel can be utilized in the most efficient and flexible manner providing excellent results from its assembly to its dismantling. The Bharati New Indian Research Station, located in the Larsemann Hills, Antarctica, is a project whose requirements were highly demanding. Winters lasting eight months with an extremely harsh climate were not the only challenge the planners were presented with, concerning logistics as well as time required for construction.

A team of specialists from different engineering firms managed to solve all issues and designed an efficient and technically feasible solution with regards to sustainability, building physics and practicability - at the same time allowing for low-costs, extreme weather conditions and an extremely short construction period of only four months: ISO freight containers were assembled in force-locked joints resulting in an extraordinarily appealing architecture. The prefabricated containers were first used for transport of all the materials that are needed at the research station. After their assembly the same containers became an essential part of the supporting structure.

Completion date	1st April 2012
Dimensions	2'000 m^2 | Tonnage 178 t
Main structure	Assembly of 134 containers to a multifunctional, compact steel-structure
Fire safety	Fire-Protected doors (T-30) based on Wicstyle 75. Punch windows (F30)
Sustainability	The modular system of 134 containers allows any kind of reassembly and reuse according to the special requirements. Moreover the containers are utilized for transport and thus waste is reduced to a minimum. This smart structure is highly efficient regarding sustainability

National jury Dipl.-Ing. Ralf Luther, Stahlbau Magdeburg GmbH | Dr.-Ing. Armin Franke, Gartner Steel and Glass GmbH | Dr.-Ing. Rolf Heddrich, Goldbeck Bauelemente Bielefeld GmbH | Dipl.-Ing. Ralf Banzhaf, Stahlbau Süssen GmbH | Dipl.-Vw. Gunther Batzke, RSB Rudolstädter Systembau GmbH | Dr.-Ing. Hans-Walter Haller, Haller Industriebau GmbH | Dipl.-Ing. Rolf Heinecke, Christmann & Pfeifer Construction GmbH & Co. KG | Dr.-Ing. Dietmar H. Maier, Ingenieurgruppe Bauen | Ingo Miletic, Claus Queck GmbH | Dipl.-Ing. Ullrich Pfabe, Züblin Stahlbau GmbH | Dr. Christoph Steinhardt, RST Stahlbau GmbH & Co. KG |Dipl.-Ing. Reiner Temme, Temme Stahl- und Industriebau GmbH

Press contact Bauforumstahl e.V. | angelika.demmer@bauforumstahl.de

5. HUNGARY



Kopitnari International Airport, 2012

Location	Kutaisi, Georgia
Client	United Airports of Georgia LLC, Tbilisi, Georgia
Architects	UNStudio, Amsterdam (NL)
Engineers	CEOS, Civil Engineering and Consulting Ltd. and M.T.M. Markovits, Civil Engineering and Consulting Ltd. Budapest (HU)
Steelwork	Rutin Ltd. Dombóvár (HU)

Description

Kopitnari International Airport was one of the most important Georgian investments in recent years. The 5000 m2 steel terminal building with timber interior had been designed by UN Studio; CEOS Ltd and M.T.M. Ltd. was responsible for super-structural design. In tight scheduling the design started in Autumn 2011, the Airport opened its gates on the 15th Sept, 2012. Keeping the real-time dynamic contact with the Dutch architects the project became an emblematic example of the right architect-civil engineer communication.
The design was performed by using Hungarian FEM software and TEKLA. Despite of the M8 earthquake and the dominant temperature-effect, finally a slender structure turned out. The fabrication and erection of the 560 tons structure was done by the Hungarian Rutin Ltd with strict quality assurance. Each element was road-transported to the 3000 km far Kutaisi, where the structure was erected in 5 weeks. Design, fabrication and site work led to the final result: satisfied customer, no site corrections.

The Hungarian Steel Association Presidium awarded the project for the excellent and high quality design and the professional execution of the steel structure. In recent project the participants have proven, that with high level and intensive communication the international team-work will lead to a satisfactory and proper result. regarding the work-shop drawings and in-site fabrication which also meets the aesthetic requirements.

Completion date	15th September 2012
Dimensions	5000 m^2; layout: 92 x 62 m rectangle
Tonnage	560 t
Main structure	Steel-timber skeleton structure with rolled and welded I/box sections, tubular columns
Fire safety	Painting and sprinkler system
Sustainability	Recyclable steel structure and timber structure of natural wood
National jury | Press contact	MAGESZ - Hungarian Steel Association contact: Prof. László Dunai | ldunai@epito.bme.hu | kvarnai@ce-os.eu

6. ITALY



New High Speed Railway Station, Turin Porta Susa, 2013

Location	Turin, Italy
Client	RFI – Ferrovie dello Stato Italiane, Turin
Architects/ Engineers	AREP, Paris (J.M. Duthilleul, E. Tricaud) – Silvio D'Ascia Architecte together with prof. arch. Agostino Magnaghi
Steelwork	BIT, Cordignano (TV)

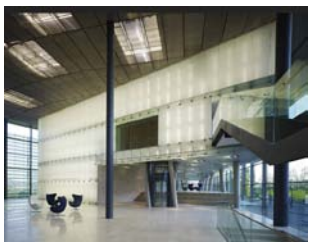
Description

The site of the Railway Station Turin Porta Susa, first high speed railway station in the route Paris-Rome has been thought as an urban place connected with the city. A real exchange pole which allows travellers to easily achieve to the different means of transport. Urban and intermodal place, this is an innovative project in the railway universe in order to face the need of having a urban hub integrator of public transport systems and social spaces. The Railway Station is a real exchange pole which allows travellers to easily achieve to the different means of transport. The Station is a long gallery covered from a stately glass window of 385 m length per 30 m wide, marked every 100 m by transversal crossing axles. At the same level of this passage, the entrees are pointed out in the glass window by lifted shaped doors. Inside the gallery a sequence of steel and glass volumes are erected on a two level concrete basement occupied by parking and technical rooms. The glass skin (15'000 m^2) is fully covered from photovoltaic single crystal cells, acting as sun screen and allowing optimizing the comfort of public areas in summer as well as in winter.

This work is a highly significant example of the versatility of steel and its role as an irreplaceable building material in distinctive and complex large scale works. Architectural form makes the station unique and instantly recognisable, and the building is an example of the highest international standards in this area of construction. Due to the originality of the design and use of the steel structures, according the tradition of railway station building, it has once again been possible to achieve significant results from aesthetic, economic, constructive, functional viewpoints.

Completion date	31st March 2013
Dimensions	385 x 30 m; 15'000 m^2
Fire safety	Coat intumescent paint and finishing for structures. Sprinkler plant inside
Sustainability	Entirely covered by photovoltaic cells located into the glass panels
National jury	ACAI – The Italian Association of Steel Constructors, Milan Dott. Ing. Alberto Vintani - Member of the Executive Board of ACAI, delegate for Cultural and Scientific Activities
Press contact	ACAI – The Italian Association of Steel Constructors | isa.zangrando@acaiacs.it
Photographs	© BIT, Cordignano (TV)

7. LUXEMBOURG


European Council Convention Centre – Kirchberg Conference Centre – Luxembourg, 2012

Location	Luxembourg Kirchberg
Client	Administration Travaux Publics, Luxembourg
Architects	Schemel Wirtz, Luxembourg and Jourdan and Müller PAS, Frankfurt (D)
Engineers	INCA, Niederanven | SGI, Luxembourg
Steelwork	CLE et Spannverbund, Strassen | Roedt CDCL et Mabilux, Leudelange

Description

The Convention Centre, which hosts the sessions of the Council of Ministers of the European Union three times a year, and is home to the Ministry of Sustainable Development and Infrastructure, is a flagship steel building. It was opened in 2012.

The building, which has a surface area of 38,200 m2 and a volume of 185,000 m3 cost €125 million, and was built in several stages between 2002 and 2012, including: the extension and modernisation of the existing rooms, together with the renovation of the facades of the building's central tower. The redevelopment and upgrade of the existing infrastructure were undertaken in order to comply with the desired energy consumption criteria.

Over 10,000 tonnes of steel were used to build the centre. Steel enabled the rigidity of the columns in the 22-storey tower to be strengthened, by fitting metal cages around the existing concrete columns. These cages consist of reassembled welded sections and of U 120 rolled sections. Steel also enabled innovations to be made, through building a horizontal metal section with a range of 24 metres for the ceremony room and the ministers' restaurant, which comes with an innovative spring system, in order to reduce the speed of acceleration. HEA and HEM 200 and 300 steel roof joists were used for the 31-metre dome.

Steel was used for traditional purposes, like mixed steel and concrete beams in order to deal with the low ceiling heights available, and to meet the requirements of the architects and chartered surveyors. It enabled specific size constraints to be dealt with, and low weight and money-saving criteria to be complied with, while meeting the specified deadlines.This Project enables a modern and attractive architectural profile that uses a cutting-edge environmental concept to be achieved.

Completion date	June 2011
Dimensions	38'200 m^2 (per stage) and 185'000 m^3 (construction volume)
Main structure	poutrelles HES et HEM de 200 et 300 pour la coupole de 31 mètres
Fire safety	Partially by composite structures also by a fire painting in combination with sprinklers for the assembly halls in phase 1B.
Sustainability	"Toward Zero Energy": more relevant than ever Reducing consumption of non-renewable energy in the projects developed by the group is the main aspect of the advisory work done by the sustainable development department.
National jury and contact	FEDIL Business Federation Luxembourg Mr. Ernest Hendrickx (Président ILTM Construction métallique) tel: +35 2 80 29 1 -404 | mobile: +35 2 621 195 359 | iltm@fedil.lu

8. NETHERLANDS


Platform canopies and Pedestrian bridge, Arnhem Central Station, 2013

Location	Arnhem (NL)
Client	Prorail Nieuwbouw, Utrecht (NL)
Architects	UNStudio, Amsterdam
Steelwork	Buiting Machinebouw & Staalconstructie B.V., Almelo (NL)
Engineers	Movares Nederland B.V.
Main contractor	BAM – Dura Vermeer

Description

AN UNDULATING STEEL STRUCTURE WITH LARGE ROOF LIGHTS PROVIDES UNCLUTTERED SPACE WITH INCREASED SAFETY

The Arnhem Central Station area is the location of one of the New Key Projects in the Netherlands. These are large-scale developments concentrated around stations that serve the European high-speed rail network. The iconic ‘Tracks in Arnhem’ project consisting of new platform canopies and a pedestrian bridge became fully operational in the spring of 2012.

The design takes account of large height differences in the station area. At one side the city is 8 m higher than the tracks and at the other the tracks are 6 m higher than the city. This provides a view over the platform complex from Amsterdamseweg (one of the most important access roads into the city) to the city-centre landmark St Eusebius' Church. To keep this line-of-sight intact it was decided not to build a traditional station roof, but instead a low hybrid roof form with an eye-catching undulating 'roofscape'. Accentuations to the height have only been made where the pedestrian bridge intersects with the stairs from the platforms.

The undulating roofscape and the seamlessly integrated pedestrian bridge provide the traveller with clear orientation and optimal spatial perception. The distinctive steel structure makes large spans possible and, together with the large roof lights, creates a feeling of space and light. These aspects contribute to a safe and positive experience for travellers at the station as well as for those working and living in the surrounding buildings.

The incorporation of easily accessible service conduits will enable future electrical and mechanical modifications to be integrated easily and aesthetically. Also lighting systems, security cameras, loudspeakers and storm water systems are fully concealed in the platform roofs and in the forked steel columns, which also serve as seating elements.

Jury report
The new canopies and the matching traffic buildings make a huge improvement to the platforms, as well as the station and the City of Arnhem. The project clearly has a non-Dutch allure, but was constructed with a Dutch budget. It has been carefully designed and consistently detailed with steel being the most appropriate

construction material. The white colour emphasises the exotic image of the entire intervention in the station area. It is an outstanding example of steel construction.

Completion date	1st June 2013
Dimensions	4 x platform roof: 210 x 9 till 14 meter, total 10'000 m^2
Tonnage	1500 t
Main structure	steelframe
Fire safety	fire proofing spray and protection by concrete flooring
Sustainability	large spans, roof-lights and glass-windows minimise artificial lighting and result in a clear orientation for travellers.
National jury	Drs. F.V.T.C. van Thiel (chairman SNS, vanthiel@staalbouw.net), A. Dolsma (communications Bouwen met Staal, arend@bouwenmetstaal.nl), ing. M. Pauw (editor in chief Bouwen met Staal, marco@bouwenmetstaal.nl), ing. F.E. Vasquez (director SNS, vasquez@staalbouw.net)
Press contact	SNS – Samenwerkende Nederlandse Staalbouw | vasquez@staalbouw.net

9. NORWAY



Trollstigen National Tourist Route, 2013

Location	Trollstigen – Tourist Route
Client	Statens vegvesen, Nasjonal Turistveger, Oslo
Architects	Reiulf Ramstad Arkitekter AS, Oslo
Engineers	Dr Techn. Kristoffer Apeland AS, Oslo
Steelwork	Christie og Opsal AS, Molde (NO)

Description

The Trollstigen plateau is perched within a dramatic pass between the deep fjords that characterize Norway. The site can only be visited and constructed in summer, due to severe winter weather. Despite the inaccessible nature of the site, the project comprise of an entire visitor environment including a mountain lodge with restaurant and gallery, flood barriers, water cascades, bridges, paths, outdoor furniture and platforms. The architectural intervention is respectfully delicate, and was conceived as a thin thread that guides visitors from one stunning overlook to another.

Trollstigen is a robust facility, dimensioned for durability with minimal maintenance and large static stresses. The area receives up to 7 meters of snow during winter, placing extreme demands on the static strength of structures and details – yet the design doesn't compromise the visual slenderness.
Cast-in-place concrete and corten steel are the main materials. The steel oxidizes and gain its own a patina over time. The concrete has been treated with several different techniques. The materials express clear and precise transitions between the architecture and the natural landscape.

Completion date	16th June 2012
Dimensions	Various plated sections
Tonnage	150 tons Corten + 25 tons stainless steel + 5 tons aluminium
Main structure	Foot bridges, paths and viewing platform
Sustainability	With the use of Corten (weathering steel) in the main structures there will be no need of surface maintenance in the life circle
National jury	Norwegian Steel Association | NSA – Norsk Stalvorbund The jury members: Grete Kvinnesland, Bymiljø- og utbygging, Stavanger kommune, representant for Norske Arkitekters Landsforbund Stig Møllersen, Multiconsult AS, representant for Norsk Forening for Stålkonstruksjoner Kåre Solberg, Contiga AS, representant for Rådgivende Ingeniørers Forening Tonje Bay, Contiga AS, representant for Den norske Stålgruppen
Press contact	NSA – Norsk Stalvorbund | Kjetil Myhre | +47 41 02 15 98 | post@stalforbund.com

10. PORTUGAL



Arena Fonte Nova Stadium, Salvador da Baia, Brazil, 2013

Location	Salvador da Baia, Brazil
Client	Fonte Nova Negócios e Participações S/A– FNP, Salvador, Bahia
Architects	Schulitz + Partner Architekten BDA, Braunschweig (D)
Engineers	RFR Ingenieure GmbH, Stuttgart (D)
Steelwork	Martifer Construções Metálicas, Lda

Description

By optimizing the steel consumption in function of the materials resistance characteristics, the steel structure of the large roof covering of Arena Fonte Nova, in Salvador, provides a very elegant and light solution. The biggest span of this structure is 258 meters long, and having a total weight of 1800 Tons, it provides coverage to 50 000 soccer spectators. The structure is composed of an outer compression ring and of an inner tension ring, which are connected by a secondary steel structure for roof trusses and fabric support. Moreover, the erection of the steel structure was performed by an also very interesting process, lifting in one time the all tension ring and connecting it to the entire roof cables and structure.

Completion date	30st March 2013
Dimensions	258 m x 216 m
Tonnage	1800 t
Main structure	Steel structure with loaded cables
Fire safety	no protection required
Sustainability	Built with advanced engineering technology, the Nova Arena will have an advanced security system with cameras in the internal circuit, screens and electronic equipment to control access.
National jury	CMM – Portuguese Steelwork Association | Prof. Nuno Silvestre; Prof. Rui Simões; Prof. Nuno Lopes
Press contact	CMM – Portuguese Steelwork Association | cmm@cmm.pt

11. SWEDEN



The Tullhus Bridge - Tullhusbron, 2012

Location	Norrköping, Sweden
Client	Norrköpings kommun, Norrköping
Architects	Erik Andersson Architects, Stockholm
Engineers	Ramböll Sweden, Luleå
Steelwork	Lecor Stålteknik, Kungälv

Description

The Tullhus Bridge is located in Norrköping and takes pedestrians and cyclists from Strömsholmen to the north quay in the city centre. The 72 meter long bridge is constructed of steel and has an hourglass-shaped body tapering towards the center both in plan and section. The beam height varies between 1.55 m to only 0.84 m at mid-span, giving a remarkably slim bridge. The bridge is held in place with negative supports, via tension rods transmitting the forces into the ground. This has been crucial to cope with the extreme slenderness. Additionally, vibration dampers are mounted in the bridge. The bridge is painted in silver metallic and its shiny underside reflects the water in the channel. A built-in hot-air system makes it possible to heat the bridge and keep it clear from snow in the winter. The first air-heated bridge in Sweden required a complicated construction process. It was prefabricated in one piece and transported in one single piece 3 km through the streets of Norrköping before reaching the building site.

Jury Evaluation

In a single slim form soars Tullhus Bridge from the quayside in the north to the lush Strömsholmen in the south. All through steel in both the expression and in the design, formed with a safe hand, where architecture and design interact with conformity. It is a showcase in the difficult art of simplicity. Every measure, every angle, every meeting between the two plates is far exaggerated in its simplification and highlights the entire mold elegance, which is impressive in a municipal construction projects.

It also hides simple ingenuity. The challenging thinness in the visible leap of over 60 m is possible with the short tensioned endspan hidden in the abutments, where the unusual air heating system also has its place. The Tullhus Bridge seems so obvious. It arrange it selves humbly in its context while it convincing speaks its own contemporary and language - without shouting!

Completion date	30st November 2012
Dimensions	72 meter long
Tonnage	125 t
Main structure	Pedestrian bridge
National jury and press contact	SBI – Stalbyggnadsinstitutet | Lars Hamrebjörk | +46 70 630 22 17 | lars@sbi.se

12. SWITZERLAND



Bridge Hans Wilsdorf, Geneva, 2012

Location	Geneva
Client	Fondation Hans Wilsdorf, Carouge, Geneva
Architects	Atelier d'architecture Brodbeck-Roulet, Carouge, Geneva
Engineers	Amsler & Bombeli Associés, Chêne-Bougeries
Steelwork	Zwahlen & Mayr SA, Aigle

Description

The steel structure of Hans Wilsdorf's bridge is composed of interlaced elliptic rings and linear elements. An expressive and elegant shape that is not just a link between the two river banks but a true experience for those who cross the river Arve.

Reinterpreting a traditional truss bridge, the structure has a longitudinal profile that describes a slight bow spanning 85.4m without intermediate supports. Its shape is the result of a long architectural and structural research that endeavoured to find a rational and cost effective construction, despite the randomness in appearance.

The metal structure forms a large tube 8.5 meters high that criss-crosses a prestressed concrete deck. The envelope is composed of different types of elements: three lower square sections, two entrance "gates", two upper longitudinal sections, two main arcs, elliptical rings and three wraparound curves. Between the two ends of the bridge, two types of elliptical rings are distributed symmetrically all along the structure. More than 250 section parameters were entered into a computer program in order to ensure strict compliance with the geometry. With its 15.5 meter wide deck, the bridge comprises two traffic lanes and two separate paths for pedestrians and cyclists. Its generous dimensions flow from the desire to promote low-impact public mobility as well as integration into the surrounding neighbourhood.

At night the project turns into a work of art. The red light that illuminates the interior, combined with the bluish-white tints of the exterior, creates a chromatic duality reminiscent of an alpine landscape at dawn or at dusk. All the structural and aesthetic qualities of the Hans-Wilsdorf bridge earned it a "European steel design award 2013"

Completion date	30st October 2012
Dimensions	85m / 17.5m / 7.9m
Tonnage	1550 t
Main structure	Ellyptic, linear Elements; S355; S460
National jury	Swiss Institute for Steel Construction | Stahlbau Zentrum Schweiz President of the Jury Prix Acier: Prof. Peter Berger; Evelyn C. Frisch SZS
Photographs	Mauren Brodbeck | steeldoc
Press contact	SZS – Stahlbau Zentrum Schweiz | Swiss Institute for Steel Construction | Managing Director Evelyn C. Frisch | +41 44 261 89 71 | frisch@szs.ch

13. TURKEY

Steel Radar Towers, Izmit

Location	Izmit, Turkey
	Izmir (11 units); Izmit (3 units), Mersin-Iskenderun (7 units); Marmara Region (3 units)
Client	Republic of Turkey | Ministry of Transportation, Shipping, and Communication, Ankara
Architects	Ragip Buluc Architects, Ankara
Engineers	Burkay Proje Mimarlik Mühendislik, Ankara
Steelwork	Üçgen Insaat Denizcilik Sanayi ve Ticaret Ltd. Sti., Istanbul

Description

After reinforced concrete radar towers were built in Istanbul and the Gallipoli straits, it became necessary that the radar towers for the Marmara, İzmit, İzmir and Mersin regions (total 24 units) would be constructed using a steel system, because the site conditions would not allow concrete placement, and most of them were located in the forest off the beaten track. It was decided to apply the system titled “Method of Stabilizing Spirals Using Metal Plates”, developed and patented by Alaittin Attaroğlu, MS Engineering.

The system’s parts were lightweight and the sizes are such that they can be lifted and carried by one man. Furthermore, it was preferred because water and wind traps would not exist when the tower was completed. Architecturally, two interlocking cylinders were envisioned. The lightening conductor system, which needed to be higher than the radar unit, was placed on the highest point of elliptic end of the outer cylinder thereby allowing uninhibited antenna rotation. The tower was placed in a prefabricated square court. The inner cylinder was white, and the outer cylinder was chosen to be red to warn aircraft.

The contrasting appearance of a technological structure within nature has been a magnificent result without artificiality. The spiral element system allows low-cost manufacturing compared to existing systems, thanks to its technical structure. According to **the preliminary design** and calculations, it has been estimated that the spiral element system cost-advantage will generally be between 30% and 40%, and our project solution will obtain these estimated target values. The seismic resistance of the spiral element system is greater than the seismic resistance of existing systems because of its technical structure. The system has the most capacity to absorb seismic energy due to its technical structure.

Completion date	4th May 2012
Dimensions	Towers are 21 m, 30, or 42 m high
National jury	TUCSA – Turk Yapisal Celik Dernegi
	Prof. Dr. Nesrin Yardimci; Msc.Arch. Eng. YasÃ,Ã,ÂŸar Marulyali
	Prof. Dr. Deniz Incedayi; Prof. Dr. Hasan Sener ; Dr. Eng. Selcuk Iz
	Arch. Oguz Oztuzcu; Arch. Dogan Tekeli
Press contact	TUCSA – Turk Yapisal Celik Dernegi | berna@tucsa.org

The Student Awards for Steel Design are a subcategory of European Steel Design Awards. The objective is to give European recognition to outstanding student projects in architectural design using structural steel as a prominent architectural feature. The rules are similar to the Steel Design Awards. The following national student projects have been awarded.

1. Germany

bauforumstahl e.V. | Dipl.-Ing. Bernhard Hauke, PhD | zentrale@bauforumstahl.de| www.bauforumstahl.de

Project	REINFORCED - exhibition space at Drubbel in Münster
Students	Hendrik Brinkmann & Holger Harmeier
University	FH Münster – msa | münster school of architecture
	Prof. Prof. h.c. Dipl.-Ing. Herbert Bühler

Foerderpreis des Deutschen Stahlbaues 2012 (Promotional Award 2012 for German Steel construction) on October, 19th 2012 at the Day of Steel.Architecture | Jury of the “Förderpreis des Deutschen Stahlbaues 2012”

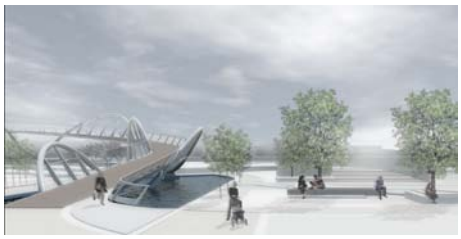
Description and evaluation
Though the open passageway area next to the Gothic Church in the rebuilt historic Old Town of Münster is prominently located, it is lacking in clear outlines as the area is formed by several residual areas. The aim was to redefine this urban space by adding clear demarcation lines, angles and new layers, while retaining the Gothic Church as the central focus.

The below street level showrooms are accessible via a markedly wedge-shaped entrance pavilion and emerge at street level as triangular uplifts on the ground. The urban space is thus expanded by two additional levels that incorporate new points of reference and spatial relations.

Hitherto dominated by “stone” only, the urban space is extended by a concrete and ferroconcrete composite structure, a construction that is optimally responsive to tensile and compressive strengths. The construction highlights steel not only as a key design element in its distinctive exterior appearance, it also makes full use of state-of-the-art steel processing technology and thus showcases the high-performance possibilities offered by modern steel construction.

The design convinces with its sensitive approach towards the historic Old Town environment, yet it establishes a clear differentiation. The triangular uplifts on the ground surface create new spatial relations and scenarios. The use of a composite material in realizing the construction is particularly outstanding, as it has led to a flat slab with steel beams in a rhombus-shaped arrangement. Steel in this project embodies a key structural design element that immediately reveals its function and strength. For the jury, this innovative use of the material is an outstanding achievement.

2. Italy




ACAI - Associazione fra i Costruttori in Acciaio Italiani | Isa Zangrando | isa.zangrando@acaiacs.it
www.acaiacs.it

Project	Two cycle and pedestrian lanes in the former Foro Boario di Davanzo area in Padua
Students	Alice Bellotto, Samuela Durante
University	University IUAV, Venice (ITALY)
	Prof. Dr. Ing S. Russo, Prof. Dr. Ing. Enzo Siviero
Date	Thesis degree competition May 2011 - April 2012
Jury ACAI	Dr. Ing. Bruno Finzi, Chairman of Jury

From the formal viewpoint, this is an interesting, original design, both overall in relation to the surrounding conditions, and in terms of its more detailed aspects. In construction terms, the design has been developed with great attention to detail, and one of the modules was subjected to resistance testing by means of the semi-probabilistic at the limit state verification method.

3. Norway



Norwegian Steel Association | Kjetil Myhre | post@stalforbund.com | www.stalforbund.com

Project	Seeing the park for the trees
Students	Guro Langemyhr og Rasmus Steen Pettersen
School/University	The Oslo School of Architecture and Design
	Professor Bente Kleven
Project date	2012-11-20
Main structure concept	Tree like shapes and sections in the main structures
Sustainability	Sustainable design, harmonizing the trees in the park

Evaluation
The task was to explore and design housing for students with a public available function on the ground.
The project shows a master volume with a reasonable steel construction which helps to give the project a special architectural expression as a part of the series of quarters (blocks).
The project also shows an interesting initiative on how individual building volumes can be connected to the master volume, and supported on "trees" into a parkroom behind. The volumes light as "lamps" in the park in the afternoon and evening. The main load bearing structures in all volumes are fabricated steel components.

4. Switzerland

Swiss Institute for Steel Construction | Stahlbau Zentrum Schweiz | Evelyn C. Frisch | frisch@szs.ch
www.szs.ch

Project	Urban housing in preservation zone, city of Zurich
Student	Alexandra Gamper | Master of Arts (M.A.)
University	Zurich University of Applied Sciences
	School of Architecture, Design and Civil Engineering
Jury	Prof. Beat Waeber, Arch. BSA/SIA
	Prof. Daniel Meyer, dipl. Bauing. ETH SIA SWB
	Master Thesis

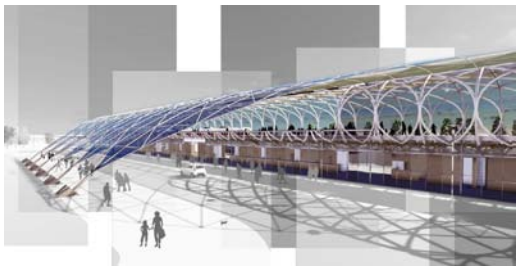
Evaluation

The multi-storey residential building was designed with a hybrid steel structure. This choice of combining several materials in a statistically optimized way, expresses the idea to link the construction to the urban context. The site is within a neighbourhood preservation area on the Weststreet in Zurich – one of the most traffic intense highways of the city.

One of the particular interest for the study, was the interaction of design and expression. The student examined possible design systems at different levels, which take into account the specific potential of the steel structure in the proper manner.

Although the actual plot of 20m in length and 12m depth hardly appears poised for a steel structure with its large static potential at first sight, it has been possible through the use of a Vierendeel-support-system to develop an adequate structure. On the outside facade, the topic of covering the structure with natural stone is reinterpreted. In this way the prevailing facade divisions can be transformed into a contemporary expression. Alexandra Gamper has demonstrated in an impressive way, to generate a valid synthesis of the internal structure of the tectonics in combination with the construction of hybrid systems and the architectural expression.

5. Turkey




TUCSA – Turk Yapisal Celik Dernegi | Berna Aydoner | berna@tucsa.org

Project	Mid-Terminal, Mamak
Students	Structure: Ali Ozgun Topuz | Architecture: Ali Sinan, Dicle Taskin, Bunyamin Cam
University	Middle East Technical University
Jury	Prof. Nesrin Yardimci; Prof. Dr. Hasan Sener; Yasar Marulyali; Assoc. Prof. Ipek Akpinar; Cem Illhan; Dr. Selcuk Iz; Yakup Hazan
Structure	Spaceframe Helical Steel Structure | 17,4 x 153,4 m Modular design integrated with cost efficient principles

Description

The project proposes a prototype called MIDTERMINAL, basically functioning as a small-scale hub juxtaposing the vehicular transportation with the railway system. The proposal derives its motivation from the existing problems caused by the heavy use of vehicular transportation inbetween the cities and tries to address a possible solution.

Terminals are interaction spaces between the people and the cities. Based upon this conception, the designed structures attempts to add in to the collective memory of the city as a new public interface. Considering the increasing importance of railway transportation, this interface would also act as a small scale transfer terminal between the overland and the railway transport. For many years, overland transportation which was given the priority created many problems. Today, the alternative transportation ways have eased a considerable extend of these problems, especially in the cities. Integrating the railway to the transportation system inbetween the cities in more efficient way would help solving the traffic problems in a greater extend. Integrating these different modes of tansportation in more compact forms would suggest more economical and sustainable solutions especially in Turkey as a country which carries a heavy transit traffic. The easy transfer of passengers and commodities are one of the primary advantages of this proposal, as well as the opportunity to choose between the different modes of transportation whichever would be more advantagious.

Ankara, being the center of railway system in Turkey, is already housing ongoing projects of high-speed train transportation. In this context, along the east-west axis of railway route in Ankara, two small scale junctional bus terminals are proposed in the scope of this project. The one in the west is in Sincan district and the one in the east is in Mamak district. Since Ankara is a city mainly extending along the west-east axis, the main bus terminal “ASTI” is now in the center of the city, creating heavy traffic problems. The proposed stations would not only integrate the bus transportation with the railway system but also relieve the traffic problems caused by the central position of “ASTI”. They would also make the railway transport more comfortable and preferable.

The chosen project area is located in the eastern part of Ankara, in Mamak, in the last station of suburban train route. In the south of the train route, the main intercity highway between Ankara and Samsun is located whereas in the North, the inner city roads are located. As an outcome of this position, the connection of private vehicles an public buses fort he city is to be provided from the north while the connection with the intercity buses is to be provided from the south.

The structure of this prototype is based upon a simple diagram. The existing railway line is kept above the ground while the terminal is elongated through the train line on the ground. The structure designed independently from the concrete columns carrying the railway line and forms a helix in the section. With the helix form, the railway line is enclosed within the terminal, steel platforms and glazed facade of the terminal are attached to the tunnel creating a direct relation with the train and the bus station. The end of the helix is enlarged and attached to the ground creating a large canopy acting as a public space. The steel tunnel is designed modular and considered to be able to extend in the case of increasing demands of capacity.

Making the use of smooth topography, the entrances and exits are all planned in the ground level. The main entrance of the building in the north establishing a strong visual connection with the other parts of terminal. In the middle axis of the building the ticket offices are located, the administration offices are on the west side whereas cafes are located on the east side. Under the canopy designed in the north entrance of the building, open spaces are proposed in the form of cafes and bus stops. The proposal, suggesting a prototype which would address many of the existing problems, manifests itself a structure of junction between the modes of transportation and the people.