

ASCCS 2012

10th International Conference on

**ADVANCES IN
STEEL CONCRETE COMPOSITE
AND HYBRID STRUCTURES**

FINAL CALL FOR ABSTRACTS

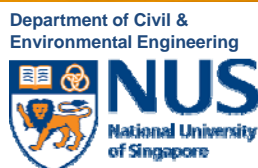
2-4 July 2012

Grand Copthorne Waterfront Hotel

SINGAPORE



**Organised
by:**



WEBSITE:

www.asccs2012.com.sg

WELCOME MESSAGE

On behalf of the local organising committee, we are delighted to invite you to participate in the 10th ASCCS to be held in Singapore from 2 to 4 July, 2012. This conference is jointly organised by the National University of Singapore and the Singapore Structural Steel Society.

The conference will bring together practitioners, academics, researchers, manufacturers, product providers, fabricators and contractors from around the world to review the advances and achievements made in steel-concrete composite & hybrid structures and products. Prominent keynote speakers will be invited to present their latest works as well as discuss and exchange ideas on current practices, innovation and future research area of needs.

TOPICS TO BE COVERED

The conference covers topics on (but not limited to): composite slabs, members & joints; hybrid structures; cold formed steel; composite use of steel with CFRP; buckling & stability; fire engineering; fatigue & fracture; lightweight structures; plates & shells; vibrations & controls; dynamic & seismic performance; wind engineering; experiments & instrumentations; computational analysis & modelling; codes; case studies; constructions, fabrications & erections; high-rise buildings; large span structures; sustainable developments.

CALL FOR ABSTRACTS

Abstract should be approximately 150 words covering objectives of paper and indicating the main findings and conclusions. All abstracts are to be submitted online and will be subject to review on the basis of applicability to the conference theme and topics, a broad appeal to conference participants and readability. Authors will receive a notification of the acceptance of their abstract by 1 January 2012 and are required to submit full papers, which will be subject to peer-review, by 1 March 2012.

Authors are reminded that all papers must be original and must not have been published elsewhere. All accepted papers will be published in hardbound printed conference proceedings and in the form of e-proceedings in CD-ROM with ISBN by a reputed international publisher. All the papers will be indexed at CrossRef (www.crossref.org) with DOI assigned for reference linking and also submitted for indexation by Thomson ISI Proceeding, Elsevier's Scopus and EI (Elsevier Index).

Online abstract submission at www.ascscs2012.com.sg

AUTHOR'S POLICY

All published materials and spoken presentations will be in English. Authors are required to register for the conference to secure the publication of papers. ASCCS 2012 is unable to reimburse authors for expenses incurred either for the presentation preparation, travel and hospitality or registration.

KEY DATES

| | | | |
|--------------------------------|-------------|------------------------|---------------------|
| Abstract Submission | 30 Nov 2011 | Author's Notification | 1 Jan 2012 |
| Final Paper Submission | 1 Mar 2012 | Final Paper Acceptance | 1 Apr 2012 |
| End of Early-Bird Registration | 15 Apr 2012 | Conference | 2-4 Jul 2012 |

Please Note: The invitation to submit an abstract or present a paper does not constitute an offer to pay travel, accommodation or registration costs associated with the Conference. No speakers' fee is paid to successful applicants. Presenters are required to pay a fee to attend the Conference.

KEYNOTE SPEAKERS



Prof. Lin-Hai HAN
*Tsinghua University,
China*

Fire Performance of Steel-Concrete Composite Structures in China: Test, Analysis and Design Approach

Prof. Han will presents some of the new developments on fire performance of steel-concrete composite structures in China. The fire performance and post-fire behavior of steel-concrete composite members, such as Concrete Filled Steel Tubular (CFST) columns and Steel Reinforced Concrete (SRC) columns were studied theoretically and experimentally. The research outcomes have been used for performance based design for some typical structural engineering projects, and the post-fire evaluations for the composite frame structures of fire-exposed tall buildings. The proposed designing formulae have also been adopted by some recent Chinese codes on fire performance design of building structures.



Prof. Brian UY
*University of Western
Sydney, Australia*

Steel-Concrete Composite Structures in Australia: Past, Present and Future

The keynote lecture by Prof. Uy deals with the past, present and future applications, behavior, design and research of steel-concrete composite structures in Australia. In the lecture, the past, present and future applications of steel-concrete composite structures for bridges and buildings will be comprehensively addressed. The behavior, design and research which informs Australian Standards will also be considered in this keynote, including future planned developments for a suite of Australian Composite Standards for buildings and bridges.



Prof. Roger PLANK
*University of Sheffield,
United Kingdom*

Steel Construction for a Low Carbon Economy

This keynote lecture outlines the importance of immediate action to ensure sustainable development and explains why construction has such a major role to play. The broader issues are introduced but the focus is on those actions which the construction industry can take to make the biggest improvements, namely reducing energy use associated with both the building process and the operation of buildings throughout their life. It is also important that the useful life of the building is prolonged, opportunities are taken to reuse components and recycle materials when they are no longer needed, and that materials are sourced in such a way that impacts are minimised. The challenge of reducing demolition waste and making positive use of other waste products are also considered. The information and tools available to help structural engineers in this are critically reviewed.



Prof. Donald W. WHITE
*Georgia Institute of
Technology, USA*

Behavior and Design of Horizontally Curved Composite I-Girder Bridge Structural Systems: FHWA Research and AASHTO Design Provisions

This keynote lecture discusses the behavior of horizontally curved composite I-girder bridge structural systems, and the representation of this behavior by the current American Association of State Highway and Transportation Officials (AASHTO) LRFD provisions. It will highlight a representative full-scale curved composite I-girder bridge tested at the FHWA Turner-Fairbank Highway Research Center Structures Laboratory, interpretation of results from the testing of this bridge, including correlation with extensive linear and nonlinear finite element simulations, and parametric extension of the test results using finite element models validated against physical tests. The resulting AASHTO Specifications provide a unified approach for the design of straight and curved composite I-girder bridges.

KEYNOTE SPEAKERS



Prof. Sangdae KIM
*Korea University,
South Korea*

Design and Construction of High-Rise Buildings – Why Concrete, Not Steel?

Super tall buildings had been built using steel structures from 1930s to 1990s. The Empire State Building, Willis (Sears) Tower, John Hancock Center and World Trade Center were all steel structures. The main use of these buildings is for offices which require a relatively long span beams, and steel structures are most suitable frames for such beams. However, Petronas Tower, International Commerce Center (Hong Kong) and Burj Khalifa are for mixed uses of offices, hotels and residential. Their main structural systems are made of concrete which have many advantages even for super tall buildings. In this lecture, Prof. Kim will explain the merits of concrete structures for over 100-story buildings and also suggest the ways to improve the use of steel for high-rise construction.



Prof. S.L. CHAN
*The Hong Kong
Polytechnic
University,
Hong Kong*

Advanced Analysis and Design of Complex and Mega Steel and Composite Structures

Complex steel and composite frames are widely used to-date and their design could hardly be carried out economically and safely by the conventional linear analysis, because of uncertainty in quantifying the buckling effects. Apart from the unreliability in assuming a correct effective length factor, many design codes further suggest the consideration of stiffness change of a frame due to members in axial compression and this leads to the urgent need of developing a more rigorous design and analysis method for complex or even conventional structures made of materials with high strength-to-elasticity ratio. This keynote lecture discusses the “second-order direct analysis” adopted by the speaker for safe, efficient and economical design of these structures. Practical and benchmark examples will be used for illustration and validation of the developed method. Real-life examples are used to demonstrate the practical use of such method for design.



Prof. Jean-Marc
FRANSSSEN
*University of Liège,
Belgium*

Tensile Membrane Action in Composite Floors Subjected to Fire

Prof. Franssen’s keynote lecture deals with the modification of the load supporting mechanism that occurs in a composite steel floor when it is subjected to fire: whereas bending is the dominant load transfer mode at room temperature, tensile membrane action develops when the slab is subjected to high temperatures. The tests that first demonstrated this behavior, as well as the tests performed in a controlled environment to quantify the mechanism will be explained. It will be shown how numerical modeling can reproduce this behavior at an acceptable CPU cost. Finally, simple design tools that allow engineers in design offices sizing a composite floor on the basis of this behavior will be demonstrated.



Dr. Yiaw Heong NG
*TTJ Design &
Engineering Pte Ltd
Singapore*

Construction of SuperTrees – Gardens by the Bay

This presentation will focus on the construction of the SuperTrees which included the connection design, fabrication and installation aspects. Erection methodology will be presented as well so that participants could understand the issues that need to be considered during the construction stages. The main challenge of the SuperTrees construction is to deal with a complex and light superstructure that mainly consists of stainless steel cable and circular hollow section (“CHS”). High accuracy is required during steel fabrication so that the complex geometry of the trees structure could be erected without tolerances problems. The connection design and its fabrication is also a challenge in this project because some of the CHS thicknesses are very thin. Additional attentions is needed at high stress concentrated area to avoid any local failure.

ORGANISING COMMITTEE

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A Zingoni *South Africa*

Reasons to Visit Singapore

Some refer to her as the “little red dot”, but Singapore’s presence in the world today is larger than that moniker. In fact, Singapore is a bustling cosmopolitan city that offers a world-class living environment, with her landscape populated by high-rise buildings and gardens. One interesting facet you’ll discover about Singapore is a ubiquitous collage of cultures, where people of different ethnicities and beliefs coexist. Besides a vibrant multicultural experience, there’s more you can discover about Singapore.

Be WOW by the World’s Largest Trees

Come July 2012, be the first visitors to visit the state-of-the-art Gardens by the Bay. It’s a mega showcase where visitors can experience and enjoy flora from the Mediterranean, Tropical Montane as well as temperate annual plants and flowering species. Be WOW too by the world’s largest “Supertrees”, ranging from 25 to 50 m, made of steel structures and serve as unique, vertical tropical gardens; as engine room for the conservatory environmental systems and as receptacles to collect rainwater, besides housing an exclusive bar or F&B outlet.



Be on Top of the World at the SkyPark

Stretching longer than the Eiffel tower laid down or four and a half A380 Jumbo Jets, and with an impressive 12,400 m² of space, the Sands SkyPark is the world’s largest cantilevered public observation deck – it measures 38 m wide, 340 m long and used over 7,000 tonnes of steel in its construction. The deck offers an unforgettable panorama view of Singapore’s skyline and waterfront.

Walk along the Helix Bridge, an Architectural Marvel

Linking Marina Bay to Marina Centre, the 289 m Helix stainless steel bridge, is Singapore’s longest pedestrian link way. An engineering feat assembled with great precision, its curved design is created by two opposing spiral steel members, held together by connecting struts, symbolizing ‘life & continuity’, ‘renewal’, ‘everlasting abundance’ and ‘growth’, and resembles the structure of DNA.



CONFERENCE VENUE

ASCCS 2012 Will be held in Grand Copthorne Waterfront in Singapore. Located next to the Singapore River, the Grand Copthorne Waterfront Hotel Singapore is one of Asia's premier 5-star properties. Guests at the hotel also have the option of choosing a room with a view of the spectacular Singapore River or the dazzling Singapore city skyline. This Singapore hotel features award-winning restaurants and is just minutes away from all the popular Singapore attractions.



REGISTRATION FORM

Title: Prof Dr Mr Mdm Mrs Ms
Family Name: _____
Company/Organisation: _____
Address: _____
Postal Code: _____
Country: _____
Email: _____
Tel: _____
Fax: _____

| Early Bird Rates (before or by 15 Apr 2012) | Standard Rates (from 16 Apr 2012 onwards) |
|--|--|
| SGD\$ 1000 | SGD\$ 1100 |

The registration fee are nett fee and includes:

- Participation in all conference sessions
- Lunches, morning and afternoon refreshments during the conference
- One set of conference package, inclusive of extended abstract book and CD ROM
- Welcome reception
- Conference dinner

PAYMENT METHOD

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(CVV: The last 3 digit code printed on the right hand corner of the signature panel)

**For bankdraft drawn on Singapore Bank or cheque payment, please write payment to:
'ASCCS 2012'**

By Singapore Cheque/Bankdraft drawn on Singapore Bank No: _____
(All bank charges are to be paid by applicant)

Amount: _____

Card Holder's Signature _____ **Date:** _____

Cancellation of Registration

All registration cancellations must be made in writing to the Conference Secretariat. Refund will only be administered after the conference.