

news & events

CONTINUING EDUCATION OPPORTUNITY

Building Security Certified Professional Seminar Slated

The Building Security Council (BSC) is holding a two-day continuing education seminar and the first examination for its new Building Security Certified Professional (BSCP) program November 27-29 in Reston, Va. The seminar offers 13 professional development hours and is intended to prepare candidates by addressing all seven domains that the test

questions will cover: project process, risk assessment, site considerations, building envelope, interior space, facility operations, and rating system. The instructors are all members of the BSC Certification Program Development Committee.

Only licensed design professionals (engineers, architects, landscape architects) and certified security professionals (CPP,

PSP) are eligible for the BSCP designation. The application fee will be waived for this administration only, and a discount is available to those who sign up for both the seminar and the examination. The test registration deadline is October 30. For more information about the BSC and the BSCP, please visit www.buildingsecurity-council.org.

CONTINUING EDUCATION OPPORTUNITY

CMC, AISC Marketing, RAM Offer Steel Seminars

CMC Steel Products, in cooperation with AISC Marketing, LLC and RAM International, a Bentley Solution Center, presents its 2006-2007 Structural Engineering Seminar Series, *SMART Steel Design in Today's Market*, in 23 cities nationwide. This half day seminar consists of industry experts presenting the following topics:

- The latest advancements in the steel industry including current market conditions and how successful structural engineers are adapting to the current marketplace dynamics.
- SmartBeam System— a product that has revolutionized the long-span composite floor market and long-span, curved, architecturally exposed roofs. Designing efficient long-span office buildings and utilization in LEED certified projects will be presented in detail.
- RAM International will present the RAM Structural System version 11 showcasing steel building design in a completely integrated environment including foundations, connections, CAD drawings, and BIM.

Each attendee will receive design guides and SmartBeam software. The program is accredited and a certificate for 4.0 PDHs is provided for each engineer who attends. Breakfast and lunch are provided. There is no cost for the seminar, but registration is required. To register, please call 800.308.9925 or visit our website at www.cmcsteel-products.com. Seating is limited and attendance is on a first come first served basis.

SOFTWARE NEWS

Autodesk to Acquire French Software Provider

Autodesk, a supplier of creation, project collaboration, and 2D and 3D design software, announced that it will acquire privately-owned, France-based Robobat, a software provider for structural engineering analysis, design and steel/concrete detailing. The transaction will occur for \$33 million.

For years, Autodesk and Robobat have shared a common vision for BIM and interoperability, going so far as to work together to integrate Robobat ROBOT Millennium with Autodesk Revit Structure, amongst other Autodesk products. The upcoming acquisition will add to Autodesk's products for the structural engineering industry, and will help the company provide a set of more integrated solutions to the structural engineering community.

CALL FOR PAPERS

International Bridge Conference

In anticipation of the 24th International Bridge Conference scheduled for June 4-6, 2007, in Pittsburgh, Pa., abstracts for papers will be accepted until October 31, 2006.

The IBC is the pre-eminent arena for the bridge industry in North America, Europe and Asia. Currently in its 24th year, the IBC annually attracts over 1,100 bridge owners and engineers, senior policy makers, government officials, bridge designers, construction executives, and suppliers from throughout the US and abroad. In 2006 participants came from 45 States and 17 countries. If you have information on the practice of bridge engineering well-suited to a large and knowledgeable audience, IBC is the forum for your presentation. For more information about IBC and the call for papers, visit www.eswp.com.

Correction

In the article "Are You Next?" (September 2006) regarding steel parking structures, the American Galvanizers Association (AGA) Service Life Chart is referenced in Figure 2. An updated version of the Service Life Chart is available on the AGA web site, www.galvanizeit.org, and in an updated version September's article at www.modernsteel.com.

Got News?

Send your news items, announcements, and industry events to Keith Grubb, grubb@modernsteel.com or Kara Luger, luger@modernsteel.com.

Third Quarter 2006 Article Abstracts

The following papers appear in the third quarter 2006 issue of AISC's *Engineering Journal*. EJ is also available online to AISC members and ePubs subscribers at www.aisc.org/epubs.

Design Aids for Unreinforced Web Openings in Steel and Composite Beams with W-Shapes

GUSTAVO DE SOUZA VERISSIMO, RICARDO HALLAL FAKURY, AND JOSE CARLOS LOPES RIBEIRO

Design aids compatible with the *Load and Resistance Factor Design Specification for Structural Steel Buildings* were obtained from computational analyses based on AISC *Design Guide No. 2* to facilitate the design of openings in webs of steel and composite beams with W-shapes.

The set of design aids presented allow identification of the "neutral zone", a region in the beam web in which openings with some particular characteristics do not reduce the beam strength. It leads to economic alternatives for web openings design, constituting a useful tool, meeting an important demand of steel designers.

Topics: Web penetrations, Beams and Flexural Members, Composite Construction

Performance-Based Seismic Design of Eccentrically Braced Frames Using Target Drift and Yield Mechanism as Performance Criteria

SHIH-HO CHAO AND SUBHASH C. GOEL

A new performance-based seismic design procedure for eccentrically braced frames (EBF) based on pre-selected yield mechanism and target drift is proposed in this paper. The design base shear is derived from a modified energy balance equation. A new seismic lateral force distribution based on nonlinear dynamic behavior is also presented. Two EBF (3-story and 10-story), which were used in a recent related study where they were designed by following current design practice and IBC 2000 provisions, were re-designed by the proposed performance-based design methodology by using the same basic design spectral values as used for the code designed frames. The proposed design procedure was validated by extensive nonlinear dynamic analyses for a number of ground motion records. Comparisons are made between the responses of the code designed frames with the ones designed by

the proposed method. The results confirm the validity of the proposed method for the study EBF in terms of meeting all the performance design objectives, such as target drifts, and intended yield mechanism, in other words, yielding occurring in a controlled manner in pre-selected elements. Thus, yielding was confined to the shear links only, and plastic hinging in the columns was eliminated except some occurring at the column bases, which was expected. This resulted in superior performance of the frames designed by the proposed method over that of the code designed frames. The total weight of steel used in the frames designed by the two approaches was the same. No attempt was made to compare the costs because of many factors that may affect them.

Topics: Seismic Design, Lateral Systems, Analysis

Progressive Collapse Analyses of 2D Steel Framed Structures with Different Connection Models

JOONHONG LIM AND THEODOR KRAUTHAMMAR

Progressive collapse is initiated by a local failure of an individual structural element that sheds additional loads on adjacent structural elements. A local failure can be defined as a loss of the load-carrying structural capacity. If any of the adjacent elements fails under the enhanced loads, additional collapses would progress to other structural elements until a disproportionate part of the structure collapses. Therefore, it is essential to investigate the nature of progressive collapse that can result in a massive destruction of a structure. In this study, the finite element code ABAQUS/Explicit was validated and used for the analyses. 2D steel frames for various combinations of spans and stories with rigid, semi-rigid, and reinforced semi-rigid connections. This paper showed that the control of horizontal column buckling propagation is a key factor in preventing progressive collapse.

Topics: Blast, Physical Security and Progressive Collapse; Analysis; Connections and Joints

Current Steel Structures Research

REIDAR BJORHOVDE

This regular feature of the *Engineering Journal* provides information on new and ongoing research around the world. In

this issue, the scope has been expanded to include research projects taking place in the United States, specifically, research on the design of extended shear tabs at University of Wisconsin, and making bolt holes in the fabrication of structural steel at University of Cincinnati. Some of the additional topics that are included from other areas of the world are as follows: beam-to-column connections with beams of unequal height (University of Coimbra in Portugal); evaluation of the plastic rotation capacity of beam-to-column connections (Nagoya Institute of Technology in Nagoya, Japan); moment-rotation characteristics of slender portal frame connections (Technical University of Timisoara in Romania); partially encased composite columns with high performance concrete (University of Alberta in Edmonton, Alberta, the École Polytechnique in Montreal, Quebec, and Le Groupe Canam, Boucherville, Quebec, Canada); analysis of plated structures, semi-analytical buckling strength analysis of stiffened plates (University of Oslo in Oslo, Norway); and use of stainless steel for welded bridges in aggressive environments (University of Liège in Liège, Belgium, the Technical University of Aachen in Aachen, Germany).

Topics: Research