

## Program

**Tuesday, October 23, 2012**

**6-9 p.m. Registration**

**Wednesday, October 24, 2012**

**7 a.m. – 4 p.m. Registration**

**8:00 a.m.** Welcoming Remarks

R.A. LaBoube, Missouri University of Science & Technology, Rolla, MO, USA

**8:10 a.m.** Technical Session No. 1: Member Behavior

Chairpersons:

W.W. Yu, Missouri University of Science and Technology, Rolla, MO, USA

T.B. Pekoz, Cornell University, Ithaca, NY, USA

“Modal Identification of Cold-Formed Steel Members in Shell Finite Element Models”, Z. Li, Johns Hopkins University, Baltimore, MD, USA, S. Ádány, Budapest University of Technology & Economics, Budapest, Hungary, and B. W. Schafer, Johns Hopkins University, Baltimore, MD, USA

“Experimental Study on Interaction Between Local and Distortional Buckling of High Strength Cold-formed Lipped Channel Columns”, L. Jiang, Baosteel Construction System Integration Co.,LTD, Shanghai, China, and B. K. He, Xi’an University of Architecture and Technology, Xi’an, China, and Y.Q. Li, Tongji University, Shanghai, China

Cold-forming Effect Investigation on Cold-formed Thick-walled Steel Hollow Sections  
Y.Q. Li, D.H. Wen, L.P. Wang and Z.Y. Shen, Tongji University, Shanghai, China

**8:55 a.m.** Technical Session No. 2: Compression Members

Chairpersons:

D. Camotim, Technical University of Lisbon, Lisbon, Portugal

G.J. Hancock, University of Sydney, Sydney, Australia

“Numerical and Experimental Investigation of Cold-Formed Steel Double Angle Members under Compression”, W. F. Maia, University of Sao Paulo, Sao Carlos, Brazil, L. C. M Vieira Jr., University of New Haven, West Haven, CT, USA, B. W. Schafer, Johns Hopkins University, Baltimore, MD, USA, and M. Malite, University of Sao Paulo, Sao Carlos, SP, Brazil

“Constrained Shape Optimization of Cold-formed Steel Columns”, J. Leng, Z. Li, J.K. Guest, and B.W. Schafer, Johns Hopkins University, Baltimore, MD, USA

“Self-Shape Optimisation of Cold-Formed Steel Columns”, B. P. Gilbert, T. J.-M. Savoyat, Griffith University, Gold Coast, Australia, and L. H. Teh, University of Wollongong, Wollongong, Australia

“Innovative Cross-Section Shapes for Built-up CFS Columns. Experimental Investigation”, I. Georgieva, L. Schueremans, Catholic University Leuven, Heverlee, Belgium, L. Pyl, Free University of Brussels, Brussels, Belgium, and L. Vandewalle, Catholic University Leuven, Heverlee, Belgium

“Compression-Tension Hysteretic Response of Cold-Formed Steel C-Section Framing Members”, D. Padilla-Llano, C. D. Moen, M. Eatherton, L. McAnallen, T. Bruce, Virginia Tech, Blacksburg, VA, USA

“Compressive Strength Tests and Design of Cold-Formed Plain and Dimpled Steel Columns”, V.B. Nguyen, Hadley Industries, Smethwick, West Midlands, UK, C.J. Wang, D.J. Mynors, University of Wolverhampton, Wolverhampton, West Midlands, UK, M.A. English and M.A. Castellucci, Hadley Industries, Smethwick, West Midlands, UK

**10:25 a.m.** Break

**10:55 a.m.** Technical Session No. 3: Technology Transfer

Chairperson:

R.L. Brockenbrough, R.L. Brockenbrough and Associates, Pittsburgh, PA, USA

R.B. Haws, Nucor, Denton, TX, USA

“Steel Deck Institute Standards for Composite Steel Floor Deck-Slabs”, T. Sputo, Steel Deck Institute, Gainesville, FL, USA

“Definition of Common Conventions for Education of CFS System Design”, S. G. Yildirim, Istanbul Arel University, Istanbul, Turkey

“AISI Standards Update”, H. Chen, American Iron and Steel Institute, Washington, D.C., USA, R. Brockenbrough, R.L. Brockenbrough and Associates, Pittsburgh, PA, USA and R. Haws, Nucor, Denton, TX, USA

“The 1st Student Competition on Cold-Formed Steel Design”, C. Yu, University of North Texas, Denton, TX, USA and C. Moen, Virginia Tech, Blacksburg, VA, USA

“Design of Nonstructural Members in Accordance with AISI S220”, R.A. LaBoube, Missouri University of Science and Technology, Rolla, MO, USA, H. Chen and J.W. Larson, American Iron and Steel Institute, Washington, D.C., USA

**12:10 p.m.** Lunch

**1:00 p.m.** Technical Session No. 4: Flexural Members

Chairpersons:

E. Batista, COPPE, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

B.W. Schafer, Johns Hopkins University, Baltimore, MD, USA

“Direct Strength Method of Design for Shear of Cold-formed Channels Based on a Shear Signature Curve”, G. J Hancock and C. H. Pham, The University of Sydney, Sydney, Australia.

“Critical Elastic Shear Buckling Stress Hand Solution for C- and Z-Sections Including Cross-Section Connectivity”, K. Aswegan and C. D. Moen, Virginia Tech, Blacksburg, VA, USA

“Shear Strength of Hollow Flange Channel Beams with Stiffened Web Openings”, P. Keerthan and M. Mahendran, Queensland University of Technology, Brisbane, Australia

“Finite Element Analyses of Lipped Channel Beams with Web Openings in Shear”, P. Keerthan and M. Mahendran, Queensland University of Technology, Brisbane, Australia

“Behaviour of LiteSteel Beams Subject to Combined Shear and Bending Actions”, P. Keerthan, D. Hughes and M. Mahendran, Queensland University of Technology, Brisbane, Australia

“Shear Buckling of Thin-Walled Channel Sections with Complex Stiffened Webs”, S. H. Pham, C. H. Pham and G. J Hancock, The University of Sydney, Sydney, Australia.

“The Effects of Web Holes on Web Crippling Strength of Cold-Formed Steel Channels Under End-Two-Flange Loading Condition”, A. Uzzaman, The University of Strathclyde, Glasgow, UK, J. B.P Lim, Queen’s University Belfast, Belfast, UK, D. Nash, J. Rhodes, The University of Strathclyde, Glasgow, UK, and B. Young, The University of Hong Kong, Hong Kong

“Load Distribution in Floor to Wall Connections”, D.M. Fox, D.R. Knill, iSPAN Systems LP, Princeton, Canada and R.M. Schuster, University of Waterloo, Waterloo, Canada

**3:00 p.m.** Break

**3:30 p.m.** Technical Session No. 5: Composite Construction

Chairpersons:

W.S. Easterling, Virginia Tech, Blacksburg, VA, USA

R.M. Schuster, University of Waterloo, Waterloo, Canada

“Push Tests on Innovative Shear Connector for Composite Beam with Cold-Formed Steel Section”, S. O. Bamaga , M. M. Tahir, and C. S. Tan, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia

“Behavior of Composite Beams with Cold-Formed Steel Joists and Concrete Slab”, C-T T. Hsu , New Jersey Institute of Technology, Newark, New Jersey, USA, P. R. Munoz, PRM Engineering, LLC, Newburyport, MA, USA, S. Punurai, Meinhardt Ltd., Bangkok, Thailand, Y.

Majdi, New Jersey Institute of Technology, Newark, New Jersey, USA, and W. P., Mahidol University, Nakornpathom, Thailand

**4:00 p.m.** Technical Session No. 6: Roof and Wall Systems

Chairpersons:

N. Rahman, The Steel Network, Durham, NC, USA

C. Rogers, McGill University, Montreal, Quebec, Canada

“Towards the Design of Cold-Formed Steel Foam Sandwich Columns”, S. Szyniszewski, Johns Hopkins University, Baltimore, MD, USA, B.H. Smith, UMass – Amherst, MA, USA, V.M. Zeinoddini, Johns Hopkins University, Baltimore, MD, USA, J.F. Hajjar, Northeastern University, Boston, MA, USA, S.R. Arwade, UMass – Amherst, MA, USA, and B.W. Schafer, Johns Hopkins University, Baltimore, MD, USA

“Direct Strength Design of Metal Building Wall and Roof Systems – Through-Fastened Simple Span Girts and Purlins with Laterally Unbraced Compression Flanges”, T. Gao and C. D. Moen, Virginia Tech, Blacksburg, VA, USA

“Experimental and Numerical Investigations of High Strength Cold-Formed Lapped Z Purlins under Combined Bending and Shear”, C. H. Pham, A. F. Davis and B. R. Emmett, The University of Sydney, Sydney, Australia.

“An Explicit, Dynamic Finite Element Model for the Local Failure of Cold-Formed Trapezoidal Sheeting”, H.(Hèrn) Hofmeyer, Eindhoven University of Technology, The Netherlands

“Dynamic Time-History Analysis on Wind-Induced Response of Lightweight Roof System”, X.K. Jing, Y.Q. Li and D.J. Gong, Tongji University, Shanghai, China

**5:15 p.m.** Recognition of Wei-Wen Yu Outstanding Student Paper and Student Scholars

**5:30 p.m.** Adjournment

**6:00 – 7:00 p.m.** Reception

Sponsored by:

American Iron and Steel Institute

Cold-Formed Steel Engineers Institute

Metal Building Manufacturers Association

Rack Manufacturers Institute

Ridg-U-Rak, Inc.

Steel Deck Institute

Steel Framing Industry Association

Steel Stud Manufacturers Association

**Thursday, October 25, 2012**

**8:00 a.m.** Technical Session No. 7: Rack Structures

Chairpersons:

J. Crews, Unarco Material Handling, Springfield, TN, USA

L. Teh, University of Wollongong, Wollongong, Australia

“Design of Perforated Industrial Storage Rack Columns for Distortional Buckling”, T. Peköz, Cornell University, Ithaca, NY, USA, G. Kıymaz, M. Casafont, M. M. Pastor and J. Bonada, Universitat Politècnica de Catalunya, Barcelona, Spain,

“Experimental Analysis of Beam-to-upright Connections in Cold-formed Steel Storage Pallet Racks”, T. Wang, X. Zhao and Y. Chen, Tongji University, Shanghai, China

**8:30 a.m.** Technical Session No. 8: Behavior of Systems and Frames

Chairpersons:

C. Moen Virginia Tech, Blacksburg, VA, USA

A.J. Harrold, Blue Scope Buildings, Kansas City, MO, USA

“An Efficient Genetic Algorithm for the Design Optimization of Cold-Formed Steel Portal Frame Buildings”, D. T. Phan, J.B.P. Lim, Queen’s University Belfast, Belfast, UK, T. T. Tanyimboh, University of Strathclyde, Glasgow, UK, and W. Sha, Queen’s University Belfast, Belfast, UK

“Advanced Design Optimization of Cold-Formed Steel Portal Frame Buildings”, D. T. Phan, J. B.P. Lim, Queen’s University Belfast, Belfast, UK, T. T. Tanyimboh, University of Strathclyde, Glasgow, UK, and W. Sha, Queen’s University Belfast, Belfast, UK

“Using Generalized Beam Theory (GBT) to Assess the Buckling Behavior of Cold-formed Steel Structural Systems”, C. Basaglia, University of Sao Paulo, Sao Carlos, Brazil and D. Camotim, Technical University of Lisbon, Lisbon, Portugal

“Investigation of Behavior of Cold-Formed Steel Sheeting Systems in Fire using Finite Element Modeling”, W. Lu, P. Mäkeläinen, Aalto University, Aalto, Espoo, Finland, J. Outinen, Ruukki Construction Vantaa, Finland and Z. Ma, Z.Ma Research and Consulting, Espoo, Finland

“Permanent Stability Bracing of CFS Trusses”, S. Rajan and W.L. Babich, TrusSteel, Haines City, FL, USA

**9:45 a.m.** Break

**10:15 a.m.** Technical Session No. 9: Connections

Chairpersons:

T. Sputo, Steel Deck Institute, Gainesville, FL, USA

J.W. Larson, American Iron and Steel Institute, Washington, D.C., USA

“Active Shear Planes in Block Shear Failure of Bolted Connections”, D. D. A. Clements and L. H. Teh, University Of Wollongong, Wollongong, Australia

“In-Plane Shear Lag of Bolted Connections”, L. H. Teh, University Of Wollongong, Wollongong, Australia and B. P. Gilbert, Griffith University, Gold Coast, QLD, Australia

“Mechanisms of Block Shear Failure of Bolted Connections”, L. H. Teh and D. D. A. Clements, University Of Wollongong, Wollongong, Australia

“Prediction of Joint Temperatures in Shot-Nailed Cold-Formed Steel Sheeting with Finite Element Modeling”, Z. Ma, Z.Ma Research and Consulting, Espoo, Finland, W. Lu, P. Mäkeläinen, Aalto University, Aalto, Finland, and J. Outinen, Ruukki Construction Oy, Vantaa, Finland

“Studies on Bracing Member End Connections for Cold-Formed Steel Sections”, R.P. Rokade, N. Prasad Rao, R. Balagopal and S.J. Mohan, CSIR – Structural Engineering Research Centre, Chennai, India

“Top Arc Seam Weld Shear Strength and Stiffness for Sheet-to-Sheet Connections”, R. Nunna, S. B. Barnes Associates, J. Martin, Verco Decking, Inc. a NUCOR company, J. Mattingly, Consulting Engineer, P. Bodwell, ASC Profiles, D. Boltz, Wheeling Corrugating, K. Cullum, Verco Decking, Inc. a NUCOR company, and R. LaBoube, Missouri University of Science and Technology, USA

**11:30 a.m.** Lunch

**1:00 p.m.** Technical Session No. 10: Shear Walls

Chairpersons:

B.L. Babich, ITW Building Components Group, Haines City, FL, USA

R. Zadeh, Steel Stud Manufacturers Association, Chicago, IL, USA

“Behavior and Strength of Cold-Formed Steel Framed Shear Walls Sheathed with Composite Panels”, C. Yu and C. Li, University of North Texas, Denton, TX, USA

“Analytical Model for Cold-Formed Steel Framed Shear Wall with Steel Sheet Sheathing”, N. Yanagi and C. Yu, University of North Texas, Denton, TX, USA

Seismic Performance of Steel Sheathed Cold-Formed Steel Shear Walls”, M. Zeynalian and H. R. Ronagh, The University of Queensland, Brisbane, Australia

“Numerical Modeling and Calibration of CFS Framed Shear Walls under Dynamic Loading”, I. Shamim and C.A. Rogers, McGill University, Montreal, Canada

“Characterization of Cold-Formed Steel Shear Wall Behavior Under Cyclic Loading for the CFS-NEES Building”, P. Liu, K.D. Peterman, Johns Hopkins University, Baltimore, MD, USA, C. Yu, University of North Texas, Denton, TX, USA, and B.W. Schafer, Johns Hopkins University, Baltimore, MD, USA

“Effects of Cold-Formed Steel Framed Gypsum Partition Walls on the Seismic Response of a Medical Facility”, R. Davies, Ehlert/Bryan, McLean, VA, USA, R. Retamales, G. Mosqueda, A. Filiatrault, University at Buffalo, State University of New York, Buffalo, NY, USA, and D. Allen, DSi Engineering, Norcross, GA, USA

\* “The Influence of the Aspect Ratio on the Lateral Response of Sheathed Cold Formed Steel Walls”, O. Iuorio, L. Fiorino, V. Macillo, M.T. Terracciano, R. Landolfo, University of Naples Federico II, Italy

**2:30 p.m.** Break

**2:45 p.m.** Technical Session No. 11: Light-Steel Framing

Chairpersons:

D. Allen, DSi Engineering, Norcross, GA, USA

P. Ford, Matsen Ford Design Associates, Waukesha, WI, USA

“Steel Cold-Formed Trussed Girders with Joint Eccentricities: Improvements on Design and Performance by Numerical and Experimental Analysis”, E. de M. Batista, A. Landesmann and J. M. Franco, COPPE, Federal University of Rio de Janeiro, Brazil

“Novel Cold-Formed Steel Elements for Seismic Applications”, A. B. Sabbagh, M. Petkovski, K. Pilakoutas, University of Sheffield, Sheffield, UK, and R. Mirghaderi, University of Tehran, Tehran, Iran

“Slip Modulus of Cold-Formed Steel Members Sheathed with Wood Structural Panels”, A. L. Northcutt, K. W. Kramer, Kansas State University, Manhattan, Kansas, USA, and S. F. Stephens, Pacific Northwest Engineering, Inc., Tacoma, Washington, USA

“Seismic Computational Analysis of CFS-NEES Building”, J. Leng, B.W. Schafer, Johns Hopkins University, Baltimore, MD, USA, and S. G. Buonopane, Bucknell University, Lewisburg, PA, USA

**3:45 p.m.** Technical Session No. 12: Test Methods

Chairpersons:

S.R. Fox, Canadian Sheet Steel Building Systems, Cambridge, Canada

C. Yu, University of North Texas, Denton, TX, USA

“Improved Reliability Determination When Testing Cold-Formed Steel Components”, V.M. Zeinoddini and B.W. Schafer, Johns Hopkins University, Baltimore, MD, USA

“Design Capacity Determination Assisted by Testing Based on LRFD Method”, Y.Q. Li, L.P. Wang, and Z.Y. Shen, Tongji University, Shanghai, China

“Testing of Connectors for Cold-Formed Steel Construction: Challenges, Recent Innovation, and Future Direction”, T. M. Stauffer, and H. K. Nguyen, Simpson Strong-Tie Company

**4:30 p.m.** Closing Remarks and Adjournment

\* Paper will not be presented