

Front Cover Art by:
Prof. Duane Ellifritt

2001 Joint SSRC/AISC Conference Program Committee

Mr. Nestor R. Iwankiw, Chairman
American Institute of Steel
Construction, Inc. Chicago, IL

Dr. Reidar Bjorhovde, The Bjorhovde
Group, Tucson, AZ

Prof. Donald R. Sherman, University
of Wisconsin, Milwaukee, WI

**Structural Stability
Research Council
Annual Technical Session
& Meeting
9-12 May 2001**



Wednesday, May 9th
Technical Session I

Thursday, May 10th
Technical Sessions III,
IV & V

Friday, May 11th
Technical Sessions VI,
VII & VIII

Saturday, May 12th
Task Group Meetings

Structural Stability Research Council

University of Florida

Department of Civil & Coastal Engineering

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Christine Schwing, Administrator
Dr. Perry S. Green, Faculty Liaison

**Joint with AISC North American Steel
Construction Conference
Broward County Convention Center,
Fort Lauderdale, Florida**

Schedule of Events

Wednesday May 9

- ❖ 2:30 PM – 4:00 PM Technical Session I Broward County Conference Center

Thursday May 10

- ❖ 10:30 AM – 12:00 PM Technical Session III Broward County Conference Center
- ❖ 2:00 PM – 3:30 PM Technical Session IV Broward County Conference Center
- ❖ 4:45 PM – 5:15 PM Technical Session V Broward County Conference Center

Friday May 11

- ❖ 10:15 AM – 11:45 AM Technical Session VI Broward County Conference Center
- ❖ 1:00 PM – 2:30 PM Technical Session VII Broward County Conference Center
- ❖ 2:45 PM – 4:15 PM Technical Session VIII Broward County Conference Center
- ❖ 5:30 PM – 7:00 PM Reception Hyatt Regency Pier 66

Saturday May 12

- ❖ 8:00 AM – 4:30 PM Task Group Meetings Broward County Conference Center
- ❖ 11:30 AM – 12:00 PM Annual Business Meeting Broward County Conference Center
- ❖ 4:30 PM – 6:30 PM Executive Committee/
TG Chair Meeting Broward County Conference Center
- ❖ 7:00 PM – 9:00 PM Executive Committee
Dinner Hyatt Regency Pier 66

Sunday May 13

- ❖ 8:00 AM – 9:00 AM Finance Committee Meeting Hyatt Regency Pier 66
- ❖ 9:00 AM – 12:00 PM Executive Committee Meeting Hyatt Regency Pier 66

Presentation of SSRC Life Membership Awards – 2001

Prof. Franklin Y. Cheng
University of Missouri-Rolla
Member – 1978

Prof. Ben T. Yen
Lehigh University
Member – 1967

Presentation of New SSRC Members-at-Large

- ❖ Dr. Gabriel Jimenez-Lopez, Walker Parking Consultants, Minneapolis, MN
- ❖ Dr. Dimitris S. Sophianopoulos, University of Thessaly, Volos, Greece
- ❖ Ms. Luciene A. C da Mata, Usiminas Mecanica, Belo Horizonte, Brazil
- ❖ Mr. John Harris, Raleigh, NC
- ❖ Dr. Lip Teh, University of Sydney, Sydney, Australia
- ❖ Dr. Paulo Batista Gonçalves, Catholic University - PUC-Rio, Rio de Janeiro, Brazil
- ❖ Mr. Brian Chen, University of Texas, Austin, TX
- ❖ Mr. Steven R. Fox, Canadian Sheet Steel Building Institute, Cambridge, Canada
- ❖ Dr. Robert Y. Xiao, University of Wales, Swansea, United Kingdom
- ❖ Prof. Siu Lai Chan, Hong Kong Polytechnic University, Kowloon, Hong Kong
- ❖ Dr. Xian-Zhong Zhao, Tongji University, Shanghai, PRC
- ❖ Prof. Jin-Guang Teng, Hong Kong Polytechnic University, Kowloon, Hong Kong
- ❖ Prof. W.M. Kim Roddis, University of Kansas, Lawrence, KS
- ❖ Prof. Jean-Pierre Jaspert, Université de Liège, Liège, Belgium
- ❖ Prof. Andre Plumier, Université de Liège, Liège, Belgium
- ❖ Mr. Roger L. Brockenbrough, RL Brockenbrough & Associates, Pittsburgh, PA

SSRC 2001 Annual Technical Session & Meeting Fort Lauderdale, Florida

❖ **Sarada M. and Raju A. Vinnakota Award**

In 1997, the Structural Stability Research Council received a generous gift from Ramulu S. Vinnakota, in honor of his parents who believed in education and research. The award has been established in the name of Dr. Vinnakota's parents, and was accepted and approved by the SSRC Executive Committee in October 1997. The fund will enable the SSRC to award a \$500 cash honorarium to be presented to a student with the best paper presented at the SSRC Annual Technical Sessions, beginning in 2000. Presentations submitted for this award are indicated by an asterisk (*) before the paper title. The Award will be presented during the Reception held on Friday evening. Listed below are the members of the Vinnakota Award Committee:

Mr. Nestor R. Iwankiw, Chairman, American Institute of Steel Construction, Inc. Chicago, IL
Prof. Mohamed Elgaaly, Drexel University, Philadelphia, PA
Dr. Peter Marshall, MHP Systems Engineering, Houston, TX
Prof. Duane Ellifritt, University of Florida, Gainesville, FL

❖ **Conference Proceedings**

Papers presented during the Annual Technical Session and the Task Group meetings, along with reports from Task Group Chairs, Corresponding Members and Task Reporters have been printed in Conference Proceedings and are available at the time of the Session. Proceedings are included in the price of Educators but may be purchased by all others for the conference price of \$25.

❖ **Acknowledgements**

The SSRC gives generous thanks to the AISC for their help in planning and executing this first joint conference of the North American Steel Construction Conference and the Annual Technical Session & Meeting. The SSRC hopes to continue the long-established relationship with the AISC and establish a new tradition of joint conferences.

Thanks are given to the 2001 Joint SSRC/AISC Conference Program Committee.

Main Technical Session Program

Technical Session I - Stability Developments

Wednesday 2:30 PM – 4:00 PM

Reidar Bjorhovde, Moderator

- ❖ *The Structural Stability Research Council and The Stability Criteria in the AISC Specification*, Theodore Galambos, University of Minnesota-Twin Cities
- ❖ *European Stability Research and Code Development Highlights: Collaboration with SSRC*, David Nethercot, Imperial College

Technical Session III – Beam-Columns and Frames

Thursday 10:30 AM – 12:00 PM

Nestor Iwankiw, Moderator

- ❖ **A Modified Elastic Approach for Design of Steel Building Frames*, Andrea Maleck, Georgia Institute of Technology; Donald White
- ❖ *The Interaction Formulae for Beam-Columns: A New Step of a Yet Long Story*, René Maquoi, Université de Liège (Sart-Tilman); N. Boissonnade; J.P. Muzeau; J.P. Jaspard; M. Villette

Technical Session IV – Seismic Stability

Thursday 2:00 PM – 3:30 PM

Donald Sherman, Moderator

- ❖ *An Analytical Evaluation of Stability Criteria for Beams in Unreinforced Moment Connections*, Bozidar Stojadinovic, University of California-Berkley; Subhash C. Goel; Leslaw Kwasniewski
- ❖ *A Statistical Evaluation of Cyclic Stability Criteria for Beams in RBS Moment Connections*, Chia-Ming Uang, University of California-San Diego; Chao-Chin Fan

SSRC Task Groups Cont'd

TG 20 – Composite Members and Systems

Chair, Prof. Amit H. Varma, Michigan State University, Department of Civil Engineering, 3573 Engineering Building, East Lansing, MI 48823 Phone: 517-432-0180 Fax: 517-432-1827 Email: ahvarma@egr.msu.edu

TG 24 – Stability Under Seismic Loading

Chair, Prof. Subhash C. Goel, University of Michigan, Department of Civil Engineering, Ann Arbor, MI 48109 Phone: 313-764-8419 Fax: 313-764-4292 Email: subhash@engin.umich.edu

TG 26 – Stability of Angle Members

Chair, Prof. Christopher J. Earls, University of Pittsburgh, Department of Civil & Environmental Engineering, 949 Benedum Hall, Pittsburgh, PA 15261 Phone: 412-624-9575 Fax: 412-624-0135 Email: earls@engrng.pitt.edu

TG 27 – Plate and Box Girders

Chair, Prof. Mohamed Elgaaly, Drexel University, Civil & Architectural Engineering Department, Philadelphia, PA 19104 Phone: 215-895-1317 Fax: 215-895-1363 Email: elgaalym@drexel.edu

TG 29 – 2nd Order Inelastic Analysis for Frame Design

Chair, Prof. Donald W. White, Georgia Institute of Technology, School of Civil & Environmental Engineering, Atlanta, GA 30332-0355 Phone: 404-894-5839 Fax: 404-894-0211 Email: dwhite@ce.gatech.edu

TG 30 – Bracing Members

Chair, Prof. Todd A. Helwig, University of Houston, Department of Civil & Environmental Engineering, 4800 Calhoun, Bldg. D, Rm N107, Houston, TX 77204-4791 Phone: 713-743-4284 Fax: 713-743-4260 Email: todd@curly.cive.uh.edu

SSRC Task Groups

TG 1 – Centrally Loaded Columns

Chair, Prof. Robert G. Driver, University of Alberta, Department of Civil & Environmental Engineering, Edmonton, AB T6G 2G7 CANADA Phone: 780-492-0091 Fax: 780-492-0249 Email: rdriver@civil.ualberta.ca

TG 4 – Frame Stability & Columns as Frame Members

Chair, Prof. Gregory G. Deierlein, Stanford University, Department of Civil Engineering, 240 Terman Engineering Center, Stanford, CA 94305-4020 Phone: 650-723-0453 Fax: 650-723-7514 Email: ggd@stanford.edu

TG 6 – Test Methods

Chair, Prof. Perry S. Green, University of Florida, Department of Civil & Coastal Engineering, 345 Weil Hall, Gainesville, FL 32611-6580 Phone: 352-392-0760 Fax: 352-392-3394 Email: psgreen@ce.ufl.edu

TG 11 – International Cooperation of Stability Studies

Co-Chair, Prof. Miklos Ivanyi, Technical University of Budapest, Department of Steel Structures, Xi Muegyetem RPK 3, Budapest, H-1521 Hungary Phone: 36-1-463-1804/1812 Fax: 36-1-463-3449 Email: lhorvath@epito.bme.hu

Co-Chair, Prof. Abdul H. Zureick, Georgia Institute of Technology, Department of Civil Engineering, Atlanta, GA 30332 Phone: 404-894-2294 Fax: 404-894-0211 Email: azureick@ce.gatech.edu

TG 13 – Thin-Walled Metal Construction

Chair, Prof. Roger A. LaBoube, University of Missouri – Rolla, Center for Cold-Formed Steel, Butler-Carlton CE Hall, Rolla, MO 65401-0249 Phone: 573-341-4481 Fax: 573-341-4476 Email: laboube@umr.edu

TG 14 – Horizontally Curved Girders

Chair, Prof. James Davidson, University of Alabama – Birmingham, Department of Civil & Environmental Engineering, 1075 13th Street, S, Birmingham, AL 35294-4440 Phone: 205-934-8435 Fax: 205-934-9855 Email: jdavidso@eng.uab.edu

TG 15 – Beams

Chair, Prof. Sriramulu Vinnakota, Marquette University, Civil & Environmental Engineering Department, PO Box 1881, 1515 W Wisconsin Ave, Milwaukee, WI 53201-1881 Phone: 414-288-7569 Fax: 414-288-7082 Email: sriramulu.vinnakota@marquette.edu

Technical Session V – Compression Members Under Special Conditions

Thursday 4:45 PM – 5:15 PM

Peter Birkemoe, Moderator

- ❖ *Strength and Stability of Reinforced Steel Columns*, Gilbert Grondin, University of Alberta; Ziqu Wu
- ❖ *Inelastic Stability of Pinned Tapered Columns*, Gabriel Jimenez-Lopez, Walker Parking Consultants; Theodore Galambos

Technical Session VI – Advanced Analysis and Steel Design

Friday 10:15 AM – 11:45 AM

Lawrence Griffis, Moderator

- ❖ *Advanced Analysis Capabilities and Their Potential in Steel Frame Design*, Ronald Ziemian, Bucknell University
- ❖ *New Trends and Special Problems in Steel Building Design*, Stanley D. Lindsey, Stanley D. Lindsey & Associates

Technical Session VII – Composite Members

Friday 1:00 PM – 2:30 PM

Samuel Easterling, Moderator

- ❖ *Proposed Revisions to Composite Construction Provisions (Chapter I) of the AISC Specification*, Roberto Leon, Georgia Institute of Technology
- ❖ *Composite Construction for Wind and Seismic Engineering*, Jerome Hajjar, University of Minnesota-Twin Cities

Technical Session VIII – Local Buckling of Beams

Friday 2:45 PM – 4:15 PM

Duane Ellifritt, Moderator

- ❖ *Proportioning High Performance Steel Girders and Beams*, Christopher Earls, University of Pittsburgh
- ❖ *The Inelastic Behavior of High Performance Steel Flexural Members*, Perry Green, University of Florida; Richard Sause; James Ricles
- ❖ **The Rotational Capacity of Beams Exceeding Compact Section Slenderness Requirements*, Deena Dinno, University of Toronto; Peter Birkemoe

Task Group Meetings, Saturday May 12

8:00 AM – 9:00 AM TG 30 Todd Helwig, Chair

8:00 AM – 9:30 AM TG 24 Subhash Goel, Chair

- ❖ *Seismic Behavior and Design of High Strength Concrete Filled Steel Tube (CFT) Beam-Columns, *Amit Varma, Michigan State University; Richard Sause; James Ricles*

8:00 AM – 10:00 AM TG 27 Mohamed Elgaaly, Chair

- ❖ Behavior of Transverse Stiffeners on Shear Web Panels, *Sung Lee, DongGuk University; C.H. Jay Yoo; Dong Yoon*

9:00 AM – 10:00 AM TG 6 Perry Green, Chair

9:30 AM – 11:30 AM TG 13 Roger LaBoube, Chair

- ❖ Postbuckling Capacities of Outstands, *Cedric Marsh, Concordia*
- ❖ *On the Accounting of Local Post-Buckling Effects in the Global Behavior of Cold-Formed Steel Columns, *Luis C. Prola, Instituto Superior Tecnico; Dinar Camotim*
- ❖ *Behavior of Complex Hat-Shape Cold-Formed Steel Members, *Stuart Baur, University of Missouri-Rolla; Roger LaBoube*
- ❖ Thin-Walled Column Design Considering Local Distortional And Euler Buckling, *Ben Schafer, Johns Hopkins University*

10:00 AM – 11:00 AM TG 14 James Davidson, Chair

10:00 AM – 11:30 AM TG 1 Robert Driver, Chair

- ❖ Cyclic Behavior of Patch-Corroded Tubular Bracing, *James Ricles, Lehigh University; Duncan Patterson*

11:30 AM – 12:00 PM ANNUAL BUSINESS MEETING

1:00 PM – 2:00 PM TG 20 Amit Varma, Chair

1:00 PM – 2:30 PM TG 15 Sriramulu Vinnakota, Chair

- ❖ The Local Web Buckling Strenght of Stiffened Coped Steel I-Beams, *Michael Yam, Hong Kong Institute of Vocational Education; Angus C.C Lam; J.J. Roger Cheng*

1:00 PM – 3:00 PM TG 4 Gregory Deierlein, Chair

- ❖ *First and Second-Order Design/Safety Checking of Steel Frames: Allowances for Member Imperfections, *Rodrigo Goncalves, Instituto Superior Tecnico; Dinar Camotim*
- ❖ Storey-Based Buckling of Unbraced Steel Frames Under Variable Loading, *Lei Xu, University of Waterloo*

2:00 PM – 3:00 PM TG 11 M. Ivanyi & A. Zureick, Co-Chairs

2:30 PM – 4:30 PM TG 29 Donald White, Chair

- ❖ *Exact Element for Advanced Analysis of Practical Steel Frames, *J.X. Gu, Hong Kong Polytechnic University; Siu Lan Chan, Z.H. Zhou*

3:00 PM – 4:30 PM TG 26 Christopher Earls, Chair

- ❖ Single Angle Geometric Axis Flexure: Behavior and Design, *Christopher Earls, University of Pittsburgh*

SSRC Executive Committee

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