



01 Feb 2000

CCFSS Technical Bulletin February 2000

Wei-Wen Yu Center for Cold-Formed Steel Structures

Follow this and additional works at: https://scholarsmine.mst.edu/ccfss-technical_bulletins



Part of the [Structural Engineering Commons](#)

Recommended Citation

Wei-Wen Yu Center for Cold-Formed Steel Structures, "CCFSS Technical Bulletin February 2000" (2000).
CCFSS Technical Bulletins. 3.
https://scholarsmine.mst.edu/ccfss-technical_bulletins/3

This Technical Report is brought to you for free and open access by Scholars' Mine. It has been accepted for inclusion in CCFSS Technical Bulletins by an authorized administrator of Scholars' Mine. This work is protected by U. S. Copyright Law. Unauthorized use including reproduction for redistribution requires the permission of the copyright holder. For more information, please contact scholarsmine@mst.edu.

Canadian Cold-Formed Steel Research Group

By Steven R. Fox, CSSBI

The Canadian Sheet Steel Building Institute and the University of Waterloo are pleased to announce the formation of a new research organization called the CANADIAN COLD-FORMED STEEL RESEARCH GROUP. As the name implies, this group has been formed to focus research efforts on cold-formed steel structural products. The objectives of the Research Group will initially focus on the following:

- Create a focal point for research into cold-formed steel as a structural building material
- Encourage graduate student to study structural engineering and do research in cold-formed steel
- Carry out research that will improve design specification in cold formed steel.
- Provide an organizational structure to develop research proposals and solicit funds from industry and government.

The Executive Director of the group is Professor Reinhold M. Schuster who is a world renowned expert in cold-formed steel design and research. Professor Schuster has been conducting research into cold-formed steel for most his professional career. He is Chairman of the Canadian Standards Association Technical Committee (CSA-S136) for the design of cold-formed steel structural members and is a member for the AISI Committee on Specifications for the design of cold-formed steel members, where he actively participates on numerous subcommittees. As part of a recent NAFTA initiative under the auspices of AISI, Professor Schuster chairs the committee of the North American Specification for the design of cold-formed steel structures (with representatives from Canada, the USA, and Mexico).

The following research projects are currently ongoing or have just been completed at the University of Waterloo:

- 1) Bearing Stiffeners for Cold-Formed Steel Floor Joists: Testing and analysis of bearing stiffeners typically used in residential cold-formed steel construction.
- 2) Vibration of Cold-Formed Steel Floor Joists: Full scale testing is being conducted on typical residential floor assemblies to determine the effects of bridging, blocking sheathing connections, residential floors assemblies to determine the effects of bridging blocking, sheathing connections, span and ceiling finish on the vibration characteristics.
- 3) Computerized Truss Design Program: A design program for residential CFS roof truss design using standard C-sections.
- 4) End-Two -Flange and Interior-Two-Flange Web Crippling: Investigating the effects of larger inside bend

radius on the ETF and ITF web crippling of single web members.

- 5) Stud to Track Web Crippling: Testing of the web crippling capacity of stud to track connections under End-One-Flange loading. Built-up jamb stud members were also tested in addition to the single stud.
- 6) Cold Work of Forming: Testing to measure the effects of cold work of forming in flats of the section and verify the AISI design methodology.

The results of any work will be published and made available (from the Group) at the completion of each project.

MBMA Releases Metal Roofing Systems Manual

By Dan Walker, MBMA

The Metal Building Manufacturers Association (MBMA) will publish the *Metal Roofing Systems Design Manual*, a one-of-a-kind design and detail manual for architects, manufacturers, engineers, specifiers, builders and others involved in the metal roofing industry.

For over two years, a team of MBMA roofing systems members and association staff have worked in partnership with the American Iron and Steel Institute's Market Development staff to develop the manual. The MBMA *Metal Roofing Systems Design Manual*, which was co-funded by the American Iron and Steel Institute, is due for publication first quarter 2000 and will include sections covering:

- *Systems Components* (such as materials, panels, ribs, clips and accessories)
- *Substrates* (such as purlins, bar joists, metal decks and wood decks)
- *Specifications and Standards* (such as current industry standards and a comprehensive standing seam metal roof system guide specification)
- *Retrofit*
- *Common Industry Practices*
- *Design* (such as the determination of environmental loads, designing panels for strength and serviceability, factors of safety, drainage calculations and design examples)
- *Installation* (such as erection, walkability and safety)
- *Energy* (such as condensation, ventilation and insulation)
- *Fire Protection* (including several UL tested and listed assemblies)

Continued on page 2

Continued from page 1

Another essential component of the Manual will be the detail drawings, which represent the industry's best design practices. Based on designs submitted by MBMA members these "generic" design details will give those designing or specifying standing seam metal roofs an important tool to verify the dependability of their systems.

"The manual will expose and examine the best practices in the metal roofing systems industry. In turn, we hope it will become the harbinger for common understanding of metal roofing systems practices among architects, engineers, specifiers and manufacturers," said MBMA Chairman Robert Lowe.

"The *Metal Roofing Systems Manual* is increasing knowledge of common practices within the industry. Another step MBMA is taking to increase this knowledge is the Metal Roofing Systems

Quality Certification Program. On November 18-19, 1999, MBMA held a Metal Roofing Systems Quality Certification training seminar in Houston, Texas. The training seminar helped metal roofing systems manufacturers gain a comprehensive working knowledge about the certification program. All MBMA members will be required to meet this rigorous certification program."

"We believe MBMA's Metal Roofing Systems Certification Program and the new *Metal Roofing Systems Design Manual* will complement each other to help continue our industry's growth," said Lowe.

Organized in 1956, MBMA serves metal building systems manufacturers, metal roofing systems manufacturers and associate member suppliers. Its membership represents more than \$2.6 billion in annual steel shipments and accounts for 46 percent of the total non-residential low-rise construction marketplace. For more information about MBMA visit www.mbma.com.

Structural Steel Engineer's Handbook

The Third Edition of the Structural Steel Engineer's Handbook, edited by Roger L. Brockenbrough and Frederick Merritt, has recently been published by McGraw-Hill. The new edition of this one-of-a kind, definitive reference - now more than ever, an integral field manual for engineering professionals - mirrors the latest developments and trends in materials, methods, codes, standards, and specifications. Offering ready access to a wealth of useful problem-solving information, it provides handy tables, charts, formulas, and illustrations - all designed to make decisions easier for both routine and exceptional structures.

Each of the 14 individual sections is the work of an outstanding engineering expert - putting at your disposal a vast reservoir of engineering experience. From roadways to building floors and roofs, from domes to cable-strung bridges, this essential guide gives you examples of the state-of-the-art in steel design, and opens the door to your innovations.

Easy to follow and use, the *Structural Steel Designer's Handbook* is a tool of choice for both experienced engineers and those just launching their careers. New materials included in this edition are:

1. New design specifications
2. New articles on Design of Hollow Structural Sections and Design of Cold-Formed Steel
3. Latest seismic design developments instituted since the Northridge Earthquake
4. New detailed bridge design examples
5. Added LRFD examples

The new chapter on the design of cold-formed steel structures was based on the 1996 edition of the AISI Specification, which is applicable to both ASD and LRFD.

SSMA Product Technical Information

The use of cold-formed steel members as building material is an intelligent choice that benefits not only the environment, but also the contractor, designer, and developer. A new publication, Product Technical Information, has been published by the Steel Stud Manufacturers Association (SSMA)

This new publication contains technical information on product identification, general product information and design tables for section properties, wall height, combined axial and lateral load, floor joist span, header load, web crippling load, and

ceiling span. It also includes channel properties, fasteners, typical details, architectural specifications, and member directory.

The Steel Stud Manufacturers Association is an organization representing manufacturers of cold-formed steel studs, joists, or track framing members. For further information, contact Steel Stud Manufacturers Association, 8 South Michigan Avenue, Suite 1000, Chicago, IL 60603, telephone: (312) 456-5590, Fax: (312) 580-0165.

UNH Students Built Steel HP Structure

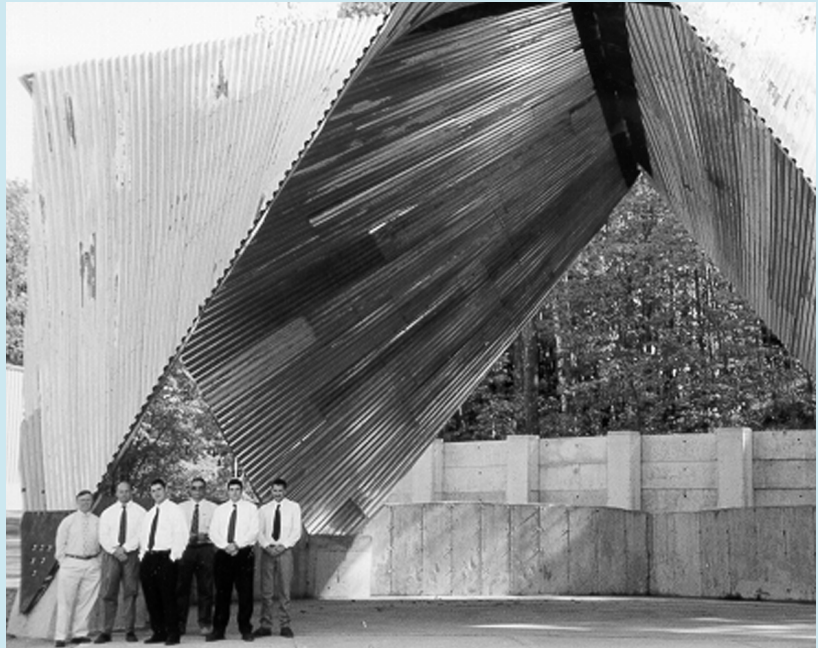
The University of New Hampshire (UNH) faculty-student team has recently completed construction of a 60-ft wide, 32-ft tall hyperbolic paraboloid structure for a new salt storage shed in Newmarket, New Hampshire. "This is a structure that's never been built before-anywhere," says Professor Charlie Goodspeed of the UNH Civil Engineering Department.

The UNH concept is unusual because the "winged" structure has no frame just a skin. Four sheets of two-ply

corrugated steel have been formed into a sort of a saddle shape that becomes structurally stable because of the way it has been stretched. The low walls made of concrete with a fiber-reinforced plastic (FRP) grid simply retain the salt, but offer no structural support to the roof. Professor Goodspeed indicated that this type of structure is best suited for buildings such as warehouses, garages, or light manufacturing. Its advantages include low cost, rapid construction, and stability. It can become commercially viable for industrial buildings.



Back row, Left to Right: Charles Goodspeed, David Walker, Sean McDonald, Front Row, Left to Right: Ryan Dumoulin, David Flynn and Richard Malsky



60-ft wide, 32-ft tall hyperbolic paraboloid structure

Educational Programs

AISI Seminar on Cold-Formed Steel Design

The AISI developed six-hour lecture which provides an overview of cold-formed steel design and the 1996 AISI Specification has been scheduled for the following three locations in May:

For further information please contact Mr. Larry Williams, Managing Director, Light Gauge Steel Engineers Association, 2017 Galbraith, Nashville, TN 37215, Telephone: 615-279-9251 and Fax: 615-385-5045.

Location

Las Vegas, NV
Philadelphia, PA
New York, NY

Date

May 1, 2000
May 19, 2000
May 20, 2000

15th International Specialty Conference

Recent research discoveries, as well as industry applications and developments, will be discussed at the 15th International Specialty Conference on Cold-Formed Steel Structures to be held in St. Louis, Missouri on October 19th and 20th, 2000. Conference papers are being reviewed and will be selected by the Planning Committee. It is

anticipated that approximately 40 papers will be selected for presentation during the two-day conference. The technical program and conference registration information will be available in July 2000. For further information regarding the conference, contact either the Center for Cold-Formed Steel Structures, University of Missouri-Rolla, Rolla, MO 65409-0030 USA (Telephone: 573-341-

4471, Fax: 573-341-4476, e-mail: ccfss@umr.edu) or Continuing Education, 103 Mechanical Engineering Annex, University of Missouri-Rolla, Rolla, MO 65409-1560, USA (Telephone: 573-341-4132, Fax: 573-341-4992).

CCFSS Survey on Teaching Cold-Formed Steel Design

In 1992, the Center for Cold-Formed Steel Structures conducted a survey on teaching cold-formed steel design in various engineering colleges and universities in the United States. The Center is now conducting another

survey to determine the current status for teaching the cold-formed steel design in the universities located in USA, Canada, and Mexico. The questionnaires used for this survey are being distributed to various universities. It can also be found from the

Center's website: <http://www.umr.edu/~ccfss>. The Center would appreciate receiving completed forms with specific suggestions for developing improved educational programs.

CALENDAR

April 29-30, 2000
Meetings of Light Gauge Steel
Engineers Association
Las Vegas, NV
Contact: (615) 279-9251

May 1, 2000
AISI Seminar on Cold-Formed Steel
Design
Las Vegas, NV
Contact: (615) 279-9251

May 2-3, 2000
Meeting of the AISI Committee on
Framing Standards
Las Vegas, NV
Contact: (202) 452-7119

May 19, 2000
AISI Seminar on Cold-Formed Steel Design
Philadelphia, PA
Contact: (615) 279-9251

May 20, 2000
AISI Seminar on Cold-Formed Steel Design
New York, NY
Contact: (615) 279-9251

July 24-26, 2000
SSRC Annual Technical Session
and Meeting
Memphis, TN
Contact: (352) 846-3874

July 27-28, 2000
Meeting of the AISI Committee on
Specifications
Toronto, Canada
Contact: (202) 452-7130

August 19-21, 2000
MCA Semi-Annual Meeting
St. Louis, MO
Contact: (312) 201-0193

October 19-20, 2000
15th International Specialty Conference
on Cold-Formed Steel Structures
St. Louis, MO
Contact: (573) 341-4481

October 31-Nov. 2, 2000
METALCON International
Atlanta, GA
Contact: (312)-201-0193

Center for Cold-Formed Steel Structures
1870 Miner Circle
University of Missouri-Rolla
Rolla, MO 65409-0030 USA

Non Profit Org.
U.S. Postage
PAID
Permit No. 170
Rolla, MO 65401

