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ACTIVITIES OF THE CENTER FOR COLD-FORMED STEEL STRUCTURES

By Wei-Wen Yu¹ and Roger A. LaBoube²

ABSTRACT: The Center for Cold-Formed Steel Structures was established at the University of Missouri-Rolla in May 1990 under the sponsorship of the American Iron and Steel Institute and the University of Missouri-Rolla. This paper summarizes the activities performed at the Center during the past two years.

I. INTRODUCTION

Since 1982, the senior author has dreamed of organizing a Center at the University of Missouri-Rolla to bring together many aspects of cold-formed steel structures. In 1988, a formal proposal for the Center was prepared and submitted to the American Iron and Steel Institute for initial funding. Subsequently, the Center for Cold-Formed Steel Structures was established at the University of Missouri-Rolla in May 1990 under the sponsorship of the American Iron and Steel Institute and the University. The primary objective was to encourage and promote the use of cold-formed steel construction through technical services, engineering education, research, and professional activity. The key role of the Center has been to serve the cold-formed steel industry by providing a unique, comprehensive information resource for manufacturers, engineers, educators, researchers, and users. The Center's purpose, functions, organization, and sponsorship were summarized by Albert Johnson at the Tenth International Specialty Conference on Cold-Formed Steel Structures (Reference 1).

During the past two years, significant progress has been made on the planned goals. The Center's activities are summarized in this paper.

II. ACTIVITIES

The Center's activities included technical services, engineering education, research, and professional activity. These items are described briefly in subsequent sections.

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A. TECHNICAL SERVICES

(a) Technical Library. The Center's Technical Library was established in August 1990. It contains a series of research reports and publications donated by the American Iron and Steel Institute and other institutions. In addition, the Library also includes the senior author's personal collection on various design specifications, design manuals, conference proceedings, textbooks, engineering journals, manufacturer's catalogs and other reference publications.

(b) Newsletters. For the purpose of disseminating technical information, the Center has published four biannual newsletters for distribution to various organizations and interested individuals throughout the world (References 2-5). In the February 1992 issue of the Newsletter, a new Technical Bulletin was included to report newly developed design provisions, specification interpretations, new test procedures, and recent publications on cold-formed steel structures.

(c) Computer Programs. During the past two years, an effort has been made to assemble available computer programs for use by students and for future reference by practitioners. The Center has received more than ten computer programs developed by vendors and an AISI publication entitled "Cold-Formed Steel Design Computer Programs" (Reference 6). These computer programs have been used for teaching cold-formed steel design.

(d) Technical Information. Since the establishment of the Center, more than 80 inquiries have been received from engineers, researchers, manufacturers, educators, and others located in the United States and other countries to request technical information and publications. All requests have been handled by Center personnel.

B. ENGINEERING EDUCATION

(a) Specialty Conference. The Center has co-sponsored the 10th and 11th International Specialty Conferences on Cold-Formed Steel Structures held in St. Louis on October 23-24, 1990 and October 20-21, 1992, respectively. All papers presented at these conferences were published in the conference proceedings.

(b) Short Course. The 12th UMR short course on cold-formed steel structures was held in St. Louis, Missouri on October 29 through November 1, 1991. This course was sponsored by the Center in cooperation with the American Iron and Steel Institute. It covered both ASD and LRFD methods for the design of cold-formed steel structures.

(c) Textbook. The Second Edition of Wei-Wen Yu's textbook, Cold-Formed Steel Design, was published by John Wiley & Sons, New York, in September 1991. This book was adopted by McGraw-Hill Civil Engineers' Book Club as a Main Selection in Spring 1992.

(d) Special Issue of International Journal. A special issue of an international journal on Cold-Formed Steel Structures is being prepared for publication by Elsevier Applied Science. It is being co-edited by Jim Rhodes, Editor of the International Journal, and Wei-Wen Yu, Guest Editor of this special issue.

(e) Monograph on Cold-Formed Steel in Tall Buildings. A manuscript of the monograph on Cold-Formed Steel in Tall Buildings was completed in 1991. It was prepared by Committee S37 of the Council on Tall Buildings and Urban Habitat. The Editorial Group included Ton Toma, Editor, Wei-Wen Yu, Chair, and Rolf Baehre, Vice-Chair.

(f) Survey on Teaching Cold-Formed Steel Design. A survey on teaching cold-formed steel design in U.S. universities and engineering colleges was conducted by the Center in 1992. The findings of the survey will be used for developing teaching materials for college students to learn the design of cold-formed steel structures.

C. RESEARCH

(a) Research Database. A research database has been established on the basis of the survey of research projects on cold-formed steel structures conducted by George Blandford in 1990 for the ASCE Committee on Cold-Formed Members. This database will be updated periodically to reflect additional information on current research.

(b) Australian International Workshop on Cold-Formed Steel Structures. An International Workshop on Cold-Formed Steel Structures has been planned by the Centre for Advanced Structural Engineering of the University of Sydney in Australia and the UMR Center for Cold-Formed Steel Structures. The Workshop has been scheduled for February 15-17, 1993 in Sydney, Australia. It is co-sponsored by the National Science Foundation and the Australian Government and steel industry. This activity is a part of the cooperative program between these two Centers.

(c) UMR research. During the past two years, the Center has coordinated the UMR research activity on cold-formed steel structures. It also assisted in the development of new projects related to basic and applied research, structural design, and development of new products and new design criteria. Close liaison has been maintained with other centers on the campus and other universities and organizations that are conducting related research on cold-formed steel structures.

D. PROFESSIONAL ACTIVITY

During the past two years, the Center has monitored the activities of various committees involved in cold-formed steel structures. Recent developments and technical activities of the following committees have been reported in the CCFSS NEWS: AISI Committee on Specifications for the Design of Cold-Formed Steel Structural Members, ASCE Committee on Stainless Steel Cold-Formed Sections, SDI Technical Committee on Steel Decks, Technical Committee on Cold-Formed Steel Structural Members of the Canadian Standards Association, Task Group on Thin-Walled Metal Construction of the Structural Stability Research Council, and Committee S37 on Cold-Formed Steel of the Council on Tall Buildings and Urban Habitat. Center personnel have chaired and are presently serving on several committees.

E. FUTURE ACTIVITY

The aforementioned activities will be continued in the future. In addition, the Center plans to assist the industry in developing educational materials and to create a database for public access to the Technical Library. The Center also plans to update and to publish the revised AISI publication on cold-formed steel design computer programs.

III. SPONSORSHIP AND ORGANIZATION

A. SPONSORSHIP

For the first two years, the Center was financially supported by the American Iron and Steel Institute and the University of Missouri-Rolla. Steel Deck Institute became a new participating sponsor in 1992. In order to attain the goals established for the Center, additional sponsors will be required.

B. ORGANIZATION

The Center personnel include a Director, Wei-Wen Yu, an Associate Director, Roger A. LaBoube, and a Secretary, Penny Roberts. Anthanett Long served as the Center's Secretary from August 1990 through August 1991.

The Steering Committee was formulated in May 1990 to provide advice and guidance to the Center. The committee now includes the following eight members: Roger L. Brockenbrough (Chairman), Gene C. Engle, Samuel J. Errera, Richard B. Haws, Albert L. Johnson, Roger A. LaBoube, Joseph E. Minor, and Wei-Wen Yu.

IV. SUMMARY

Since the establishment of the Center for Cold-Formed Steel Structures at the University of Missouri-Rolla in May 1990, significant progress has been made during the past two years. This paper outlines some specific activities performed at the Center concerning technical services, engineering education, research, and professional activities.

V. ACKNOWLEDGMENTS

The Center acknowledges the financial support provided by the American Iron and Steel Institute, Steel Deck Institute, and the University of Missouri-Rolla. Appreciation is expressed to members of the Steering Committee for their technical guidance and to Mrs. Roberts and Mrs. Long for their administrative and secretarial support. Sincere thanks are also due to several UMR administrators: former Chancellor M.C. Jischke, Chancellor J.T. Park, Dean R.L. Davis, and Chairman J.E. Minor for the approval of the Center and their continued interest and support.

VI. REFERENCES

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