AMERICAN ASSOCIATION FOR WIND ENGINEERING
www.civil.buffalo.edu/aawe

American Association for Wind Engineering

THE WIND ENGINEER

Bogusz (Bo) Bienkiewicz, Editor

July 2000

Special Points of Interest:

- *Eighteen Senators joined the Congressional Natural Hazards Caucus, formed in the U.S. Senate.*
- *Twenty seven Congressmen joined the Wind Hazard Reduction Caucus, formed in the U.S. House of Representatives.*
- *Opportunities exist for participation in ASCE and SEI technical committees dealing with wind and wind effects.*
- *Wind Hazard Discussion Group provides unique forum for exchange of ideas on wind hazard mitigation.*
- *Wind engineering software released by the Standards Design Group, Inc. aids the use of ASCE & ASTM standards.*
- *In order to be included in the AAWE Membership Roster, AAWE members are encouraged to renew their membership by August 31, 2000.*
- *Previous issues of The Wind Engineer are now available on line, at the AAWE web site.*

Inside this issue:

UPDATE ON RECENT INITIATIVES IN WASHINGTON, D.C., ON NATURAL HAZARDS AND STORM HAZARD REDUCTION

From the Editor: A number of notable Congressional initiatives of importance to members of AAWE and to the wind engineering community in general were recently undertaken in Washington, D.C. This note is focused on the Congressional Natural Hazards Caucus, formed in the U.S. Senate and on its Working Group. Update is also provided on the, reported in March 2000 issue of The Wind Engineer, Wind Hazard Reduction Caucus, formed in the U.S. House of Representatives and on affiliated with it Wind Hazard Reduction Coalition.

Formation of Congressional Natural Hazards Caucus

Senators John Edwards of North Carolina and Ted Stevens of Alaska formed earlier this year the Congressional Natural Hazards Caucus (CNHC). The objective of the caucus is to promote ways to reduce the loss of life and property when disasters strike and to streamline aid for victims. Senators Ted Stevens and John Edwards serve as Co-Chairs of the caucus. Since its formation, sixteen Senators joined the caucus: Daniel Akaka of Hawaii, Barbara Boxer of California, John Breaux of Louisiana, Robert C. Byrd of West Virginia, Max Cleland of Georgia, Thad Cochran of Mississippi, Kent Conrad of North Dakota, Byron Dorgan of North Dakota, Diane Feinstien of California, Bob Graham of Florida, Daniel Inouye of Hawaii, Frank Murkowski of Alaska, Charles Robb of Virginia, Charles E. Schumer of New York, Robert G. Torricelli of New Jersey, and Ron Wyden of Oregon.

Forum on Reducing America's Vulnerability to Disasters

The first formal meeting of the CNHC took place on Wednesday, June 21, 2000, when Senators Edwards and Stevens convened the "Congressional Natural Hazards Caucus Forum on Reducing America's Vulnerability to Disasters". The forum took place on Capitol Hill, in Washington, D.C. The topic of the forum seemed to be very timely, as large-size hearing room, in the Dirksen Senate Office Building, was filled with audience and media, with standing room only for those who arrived late.

The meeting was Co-Chaired by Senators Edwards and Stevens. They were later joined by Senator Akaka. After introductory remarks by Senators Edwards, Stevens and Akaka, a testimony was given by

members of a panel of governmental and private sector witnesses. They included: James Lee Witt, Director of the Federal Emergency Management Agency (FEMA); Sue Richter, Senior Vice-President of the American Red Cross (ARC); Eric Tolbert, Director of the North Carolina Emergency Management Department (NCEMD); John Jones, Deputy Director of the National Weather Service (NWS); Dr. Bill Hooke, Senior Policy Fellow at the American Meteorological Society (AMS); and Harvey Ryland, President and Chief Executive Officer of the Institute for Business and Home Safety (IBHS).

"For far too long, federal, state and local officials and private agencies have survived with a piecemeal approach to disasters," Senator Edwards said. "We can do a better job preparing for natural disasters and we can do a better job helping innocent victims of hurricanes, tornadoes, earthquakes and other calamities." Senator Stevens agreed with Senator Edwards' sense of urgency for a coordinated action mandated by Congress, to deal with natural disasters. In his opinion there is a chance for introduction next year a congressional bill to deal with this problem. He stressed that development and implementation of effective national program to address issues associated with mitigation of natural hazards must involve substantial participation of private sector. Senator Akaka commented on natural disasters affecting Hawaii: earthquakes, hurricanes, tsunamis, and droughts.

Introducing Director Witt, the first testifying witness, Senator Edwards praised the speaker for instituting dramatic improvements at FEMA. In his testimony, Director Witt told the caucus, "I appreciate that you all have found a way to establish a permanent forum for thoughtful discussion about the natural hazards that our communities face. We make a lot of important investments in our country in education and in our environment. Now we need to make some investments to lessen the impact of disasters on the lives of our communities."

The above themes were reflected in testimony of other witnesses of the forum. Sue Richter phrased them in context of the mission of the American Red Cross. Eric Tolbert outlined initiatives in the area of natural hazards mitigation undertaken in North Carolina. Harvey Rayland stressed the need for protection of businesses during natural disasters and the development of mitigation features appropriate for both new and existing (older) structures. John Jones described ongoing initiatives at NWS, geared towards better forecasting and warnings.

Dr. Hooke provided a list of six needs/recommendations suggested for consideration by the caucus: (1) National assessment—e.g. pre-event analysis of expected overall costs, including secondary effects (such as disruption in business operations and others) associated with a natural hazards event, e.g. for assumed hurricane landfall in the New Orleans area; (2) Investment in monitoring infrastructure (instrumentation, etc.), including updating existing (weather, earthquake, other) monitoring systems; (3) Increase investment in structural engineering research and development to improve our knowledge on performance of buildings and structures, including a systems analysis approach; (4) Engage private sector in wind/natural hazard mitigation activities; (5) Keep score—develop measures and monitor them to assess the effectiveness of resources invested in hazard mitigation activities; (6) Get psychology and other fields involved to learn as much as possible from damage due to past/recent disasters (some techniques used by aviation industry in analysis of aircraft accidents might be useful).

It was brought to attention of the participants of the Forum that the average cost of natural disasters is on the order of $50 billion per year, which translates into average losses of approximately $1 billion per week.

In closing the Forum, Senator Edwards asked the Natural Hazards Caucus Work Group to prepare a report addressing the problem of natural hazard mitigation, which could be then used as an outline to be considered/debated in Senate.

Note from the Editor: More information on the Congressional Natural Hazards Caucus and on the Forum (including transcripts of remarks by Senator Edwards and testimonies by Director Witt, and Senior Vice President Richter can be found on the caucus website: www.senate.gov/~edwards/cnhc/index.html.

Natural Hazards Caucus Work Group

The Natural Hazards Caucus Work Group (NHCWG), consisting of non-congressional members, has been formed to support activities of the Congressional Natural Hazards Caucus. The objectives of the group include: (1) Focus greater attention in Congress on the natural and man-made hazards facing the nation and to improve the understanding of the need to mitigate against the impact of floods, earthquakes, hurricanes, landslides and land subsidence, tornadoes, volcanoes, wind storms, drought, fire, and tsunamis; (2) Foster better land-use planning and optimize building codes; (3) Strengthen public and private support for science and engineering research by demonstrating how application of advances in science and engineering research can contribute to saving lives and money; (4) Support the implementation of new technologies, such as geographic information systems, to address societal challenges faced by state and local government, and the private sector; and (5) Identify additional areas of consensus and common interests related to natural hazards.

The members of the NHCWG include (as of 6/17/00) the following organizations: American Geological Institute, American Geophysical Union, American Meteorological Society, American Red Cross, American Society of Civil Engineers, Applied Technology Council, Association of American State Geologists, Association of State Flood Plane Managers, Disaster Recovery Business Alliance, Earthquake Engineering Research Institute, Emergency Information Infrastructure Project, Geo-Institute of ASCE, Geological Society of America, Institute for Business and Home Safety, International Association of Emergency Managers, International Code Council, IRIS Consortium, Manufactured Housing Institute, Multihazard Mitigation Council of the National Institute of Building Sciences, National Association of Contingency Planners, National Emergency Management Association, Reinsurance Association of America, Seismological Society of America, State Farm, Structural Engineering Institute of ASCE, Telcordia, University Corporation for Atmospheric Research, and Western Disaster Center.

The NHCWG is currently seeking charter members of the caucus as well as organizations interested in joining the group. The contact persons for the group are: David Applegate at the American Geological Institute (703-379-2480 x228; applegate@agiweb.org) and Peter Folger at the American Geophysical Union (202-777-7509; pfolger@agu.org). The website address of the NHCWG is: www.agiweb.org/workgroup.

Upon unanimous recommendation of the AAWE Board of Directors, AAWE intends to become an active member of the NHCWG.

Update on Wind Hazard Reduction Caucus and Wind Hazard Reduction Coalition

As we reported in the January 2000 issue of the Wind Engineer, Wind Hazard Reduction Caucus (WHRC) was formed in the U.S. House of Representatives by Congressmen Walter Jones of North Carolina and Dennis Moore of Kansas. Among objectives of the WHRC are: (1) To increase Congress' awareness of the public safety and economic loss issues associated with tornadoes, hurricanes, tropical storms and thunderstorms, and (2) To develop and seek funding for a National Wind Hazard Reduction Program. Since its formation, 25 Congressmen joined the WHRC: Cass Ballenger of North Carolina, Eddie Bernice Johnson of Texas, Richard Burr of North Carolina, Eva Clayton of North Carolina, Bob Clement of Tennessee, Howard Coble of North Carolina, Robert E. (Bud) Cramer Jr. of Alabama, Lincoln Diaz-Balart of Florida, Mike Doyle of Pennsylvania, Phil English of Pennsylvania, Bob Etheridge of North Carolina, Mark Foley of Florida, Virgil Goode of Virginia, Ralph M. Hall of Texas, Robin Hayes of North Carolina, Paul Kanjorski of Pennsylvania, Frank Lucas of Oklahoma, Mike McIntyre of North Carolina, Connie Morella of Maryland, Sue Myrick of North Carolina, David Price of North Carolina, Max Sandlin of Texas, Bob Schaffer of Colorado, Vic Snyder of Arkansas, and David Vitter of Louisiana. The contact persons for the WHRC are: Jana Denning in Rep. Moore's office (jana.denning@mail.house.gov) and Amy Hanson in Rep. Jones' office (amy.hanson@mail.house.gov).

To support goals and activities of the WHRC, Wind Hazard Reduction Coalition was formed under the stewardship of the American Society of Civil Engineers. The Coalition held several meet-

ings to discuss issues associated with promotion of the goals of the WHRC. It also met with representatives of the WHRC. The contact person for the Coalition is Bryan Pallasch, Director, Government Relations, ASCE (202-789-2200, bpallasch@asce.org).

AAWE is a member of the Coalition. As the Vice President of AAWE, Bo Bienkiewicz represented AAWE during recent meeting of the Coalition with representatives of the WHRC, held in June 2000, in Washington, D.C. AAWE intends to actively participate in initiatives of the Coalition.

Opportunities for Wind Engineering Researchers and Practitioners to Participate in Technical Committees of ASCE and SEI

The Wind Effects Committee of Structural Engineering Institute (SEI) and the Aerodynamics Committee of the Aerospace Division of American Society of Civil Engineering (ASCE) are recruiting new members.

The ASCE and SEI have a number of technical committees where among other issues, the problems of wind and wind effects on structures are discussed. The two committees, listed above, are unique, as they are solely devoted to wind engineering practice and research. These committees have meetings once a year, during annual ASCE/SEI Structural Congresses. Between these meetings, activities of the committees are carried out though a number of task and technical subcommittees of each of the committees. Progress in work carried out by these subcommittees and their plans for future effort are discussed during the annual meetings. During that time, formation of new subcommittees and closure of the existing ones, which completed their assignments, are also debated. In addition, proposals for sessions for ASCE/SEI technical meetings are formulated. The organization and membership of each technical committees of ASCE/SEI are summarized in annual ASCE Official Register.

According to the ASCE Official Register 2000, the Wind Effects Committee has currently 16 members and three subcommittees. The term of membership of a number of the committee members has expired or will be expiring soon. As a result, the committee has initiated recruitment of new members. Opportunity exists for persons interested in participation in activities of the committee, to join the committee and get involved in initiatives of its subcommittees. Currently there are three listed subcommittees of this committee (On Wind-Induced Motion Perception Criteria for Tall Buildings, On Computer-Aided Wind Engineering, and On Resource Documents Need in Wind Engineering). Opportunity exists to form new subcommittees or task committees. Persons interested in joining the Wind Effects Committee are encouraged to contact the committee Chair, Mike Gaus (gaus@eng.buffalo.edu, 716– 645-2114 x2410).

The Aerodynamics Committee is one of committees of the Aerospace Division of ASCE. Its structure is similar to that of the SEI Wind Effects Committee. According to ASCE Official Register 2000, the committee consists of 30 members. Work is carried out through four subcommittees (On Aerodynamic Testing, On Architectural Aerodynamics, On Numerical Flow Modeling, On Wind Damage Investigation) and one task committee (On Outdoor Human Comfort). This committee has also initiated a new member recruitment campaign. Persons interested in learning more about activities of this committee and/or joining it, are encouraged to contact Cesar Farell, Chair (612-627-4010) or Jack E. Cermak, Co-Chair (jecermak@lamar.colostate.edu, 970-491-8204).

Call for Session Proposals for SEI 2002 Structures Congress

The SEI 2002 Structures Congress & Exposition will take place in Denver, April 4-6. The call for proposals for technical sessions for this meeting has been issued. Preference will be given to sessions that present the latest developments in performance based engineering concepts. A number of wind engineering sessions have been recommended by the SEI Wind Effects Committee and ASCE Aerodynamics Committee. For information about these sessions, please contact chairs of the above committees. Other proposals are welcome. The deadline for the proposals is November 1, 2000.

Wind Hazard Discussion Group

Among the opportunities offered by the new information age is the capability to interchange information very rapidly and economically. Taking advantage of this capability, James Cohen, PE and PIM Fellow has established a wind hazard e-mail discussion group. The American Society of Civil Engineers through a Partners-In-Mitigation Fellowship furnished support for this activity. The e-mail group is dedicated to providing a cross-disciplinary moderated discussion group that is dedicated to furthering wind hazard mitigation. Anyone can participate in the group by sending e-mail to wind_haz_mit@groups.com. It is possible to request to be added to the group so that questions and information, after screening by the moderator, are transmitted to all active members of the group. The group provides a forum in which wind questions can be addressed to the broad wind community or comments or information sent to group members. Questions will generally lead to answers from others who may have experience or information they are willing to share with others.

The discussion group is operated through the service provider egroups. Information on egroups can be found at www.egroups.com/info/help.html . Use the Search function to find "wind hazard" in "All egroups". In addition to wind hazard you will find discussion groups for Flood Hazard Mitigation, Disaster Response & Recovery and Ice, Snow and Hail.

Questions on the discussion groups can be addressed to James Cohen, (609) 730-0511, or e-mail address jccpc@msn.com.

Wind Engineering Software

Anyone who has fully utilized the ASCE A7 Standard to evaluate the suggested design loads for a structure or who has had to evaluate the potential strength of window glass under wind loading realize what a tedious procedure this can be and may even be discouraged from fully carrying out the analysis.

The Standards Design Group, Inc. has recently announced the availability of two new windows-based programs that should be of interest to wind engineers. One program carries out the computations for ASCE A7-98 and the other performs the calculations required to design window glass according to ASTM E1300-98.

Window Glass Analysis

The ASTM E1300 Standard requires a designer to use 12 basic glass strength charts along with numerous other charts and tables to achieve a window glass design in an iterative manner. Persons experienced with the ASTM E1300 procedure can attest to the fact that the manual task of achieving a suitable design for an insulating glass unit can easily consume an hour or more. The new windows-based program evidently provides a number of useful features:

- Easy input of pertinent design information
- Automatic selection of appropriate values from charts and tables
- Evaluation of the proposed glass for sufficient wind resistance
- Center glass deflection under design loads
- Probability of breakage of annealed monolithic window glass for first occurrence of design load
- Easy modification of design inputs for iterative design

After the program aids in the design of an optimum window glass selection, a comprehensive report can be printed consistent with ASTM E1300 suitable for reviewers and building officials. The design procedure will be included in the International Building Code.

Minimum Wind Design Loads for Building and Other Structures

The ASCE Standard A7-98, Minimum Design Loads for Buildings and Other Structures (A7 Standard) provides a basis for determining wind loads and other loads on structures in the United States. All model-building codes include this standard as a reference and the new International Building Code has adopted the A7 Standard as the recommended design method.

Evaluation of wind loads can be a very complicated process and the A7 Standard has provided the best information currently available for dealing with these problems for rigid structures and a limited class of flexible structures. Unfortunately the complication of the wind loading also can lead to a relatively complicated procedure for code-based evaluation of wind loads. A full evaluation of the structural and parts and portions loadings for even a relatively simple structure can lead to lengthy and tedious calculations using the A7 Standard. The Wind Loads on Structures program recently released by the Standards Design Group removes much of the tedious computation for manual analysis and reduces the evaluation of A7-98 to relatively simple steps.

The "Wind Loads on Structures Program According to ASCE-7-98" has a user-friendly format in the Windows™ operating system. The software allows the user to "build" a footprint of the structure in the computer and then determine the appropriate wind pressures. The basic design wind speed is determined by simply clicking on the ASCE 7-98 wind speed map, After entering the structure and location data, pressures on main wind-force resisting system (MWFRS) and components and cladding (C&C) are computed and displayed for four wind directions. Net forces may be calculated for mono-sloped roofs, chimneys, tanks, signs, latticed frameworks and trussed towers. The methods for buildings of all heights, low-rise and high-rise buildings are available to the user. All factors used in computing wind loads on the structure can be displayed and printed. Calculators for certain parameters such as velocity pressure, gust effect factors and wind pressures allow the user to examine the effect of various parameters on the calculations. The following technical consultants served in writing and editing "Wind Loads According to ASCE-7-98" and in providing interpretation: Dr. Kishor C. Mehta, Director of the Wind Engineering Research Center (WERC) at Texas Tech University (TTU) and former chairman of the ASCE-7 Wind Load Committee, Dr. James R. McDonald, Prof. and Chairman of Civil Eng. at TTU, faculty associate in the WERC, and member of the ASCE-7 Wind Load Committee; Dr. H. Scott Norville, Prof. of Civil Eng. at TTU, Director of the Glass Research and Testing Laboratory, and faculty associate in the WERC; Dr. Douglas A. Smith, Assistant Prof. of Civil Eng. and faculty associate in the WERC. The software operates in Windows™ 95, 98 and NT operating systems. It is assumed that Windows 2000 compatibility will be added.

More information on both software packages is available on a web page at www.standardsdesign.com. Examples of a design problem and output reports are included. It appears that the price for a single license of the glass design program is $100 and $299 for the wind design program. Upgrades to the programs will be made available to add new features.

AAWE has not had an opportunity to evaluate either of these programs and cannot comment on the effectiveness of either of them. However, it appears that these programs may be a significant advance in implementing wind engineering design loadings. The information is thus being made available with this disclaimer.

President's Corner

The AAWE membership year spans from July 1 through June 30. Please use the Membership Application/Renewal Form included in this Newsletter and forward it with enclosed dues to Dr. P. Sarkar, the AAWE Secretary/Treasurer. You are urged to fill-in all the personal data on the Form. We are planning to publish a new roster of the AAWE members and your correct/updated information is crucial. In order to have you included in the roster, we need to receive your reply by August 31, 2000.

The last several months have seen a large amount of activity that shows an increasing awareness on the part of Congress, public agencies, the insurance industry and the public of the magnitude of the natural hazard problem in the U.S. Insurance companies report that 70% of current losses are from wind-related hazards. As natural hazard losses are currently running around $1 billion per week in the U.S., the numbers are substantial. Unfortunately the wind hazard problem is complex and there is a tendency to expect quick fixes. Due to the fact that a large part of the problem are the

existing structures and infrastructure, this is not likely to happen. It is estimated that there are something on the order of 140 million structures and facilities in the U. S. The cost of retrofitting these facilities to current standards, which themselves have not been adequately evaluated, would be truly staggering. Many alternatives exist, such as the construction of shelters, but this is not likely to be more than a partial solution under even the best of circumstances. Serious questions remain regarding the interaction of technology and economics with respect to how "wind proof" new and existing structures could be made. This is particularly true of residential and small commercial structures. Unfortunately there is very little research in progress to cast new light on this situation and to generate new approaches which utilize new basic information on the phenomena, resistances, the use of manufacturing approaches that have been so successful in other industries and the potential contribution of new material technologies and equipment. In addition, there is an argument which claims that we have all of the information we need and the problem is only one of implementation and inspection. It will take time to sort out these complex questions.

With respect to AAWE, we need to find ways to get the membership more directly involved in wind hazard awareness activities. Perhaps we could start with establishing task committees charged to prepare short papers on wind engineering problems and issues. They could serve as resource documents for the development of policy issues, and to identify directions for wind engineering development. These would not be peer reviewed papers, for which we already have numerous channels. Issue papers could be published on the AAWE website and/or distributed as published reports. A few topics, which I can think of quickly, are:

- Development of wind engineering content for structural analysis and design courses.
- Design philosophy for residential and small commercial structures — could post-elastic ductile behavior be provided at no or low cost, following earthquake design philosophy?
- How to develop a more educated public whose members would then be better consumers?
- How can we more effectively transfer wind resistance information to small contractors and craftsmen, who would be more likely to follow procedures if they understood the implications?

Many other organizations are struggling with these types of questions and I am sure many of our members could also come up with their pet topics. We need to hear from all.

AAWE Corporate Member Profile: Cermak Peterka Petersen,Inc.(CPP)

Cermak Peterka Petersen, Inc. (CPP) is the first commercial firm in the United States to offer boundary - layer wind-tunnel testing for the design of buildings and other structures. The basis for CPP's work stems from over 40 years of research by CPP principals, including the design of the first wind tunnel to test commercial building applications. Founded in 1981, CPP maintains a position of leadership and excellence in wind engineering. Staff members are recognized nationally and internationally as pioneers in the development of the field.

Dr. Jack E. Cermak, President, pioneered the design and use of the turbulent boundary-layer wind tunnel with his work at Colorado State University from 1952-present. Dr. Cermak has dedicated his career to the fields of fluid dynamics and atmospheric science and their application to fluid modeling of boundary-layer winds and wind effects on structures, as well as atmospheric transport of air pollutants, snow, sand, and water.

Dr. Jon A. Peterka, Vice President, acts as Principal-in-Charge for all wind-load projects including wind loads on curtain-walls, frames, roofs, towers, stacks, bridges, power lines, pedestrian comfort evaluations, and snow drifting. He is assisted by Principal and Vice President Dr. Daryl W. Boggs, who specializes in structural engineering services, and dynamics of tall or flexible structures in particular.

Dr. Ronald L. Petersen, Vice President, acts as Principal-in-Charge for all environmental projects including fume reentry assessments, "Good Engineering Practice" stack height evaluations, Equivalent Building Dimension determinations, site specific studies in complex terrain and urban areas, hybrid modeling for risk management plan development, dispersion model testing and evaluation, and other air quality evaluations.

Two atmospheric boundary layer wind tunnels are owned and operated by the company at Fort Collins, Colorado. Among the largest such facilities in the United States, these wind tunnels allow CPP's staff the

flexibility to design tests which take full advantage of the latest physical modeling techniques. CPP also operates a field test site which permits the testing of full-scale structures and building components.

CPP's services include, but are not limited to, the following areas: Wind Pressures on Curtain Walls and Roofs, Frame Loads and Dynamic Response of Buildings, Towers and Other Structures, Stadiums and Arenas, Pedestrian Comfort, Air Quality Assessments of Laboratory Exhausts and Intakes, Pollutant Transport and Dispersion in Complex Environments, Good Engineering Practice Stack Height Evaluations, Equivalent Building Dimensions for ISC and PRIME Modeling, Site-Specific Concentration Estimates for RMP Applications, Snow Loading and Drifting, Full-Scale Measurements Using CPP's Field Test Facility, On-Site Testing and Monitoring, Meteorologic Data Analysis, and Forensic Expertise for Wind Problems, and Development of Provisions for Wind Load Standards and Codes. For further information please visit the CPP's website at www.cppwind.com.

AAWE Corporate Member Profile: Rowan Williams Davies & Irwin Inc. (RWDI)

Now in its 29th year of providing services, Rowan Williams Davies and Irwin Inc. (generally called RWDI) has grown to 185 staff with a worldwide practice in wind engineering and a host of related services. Dr. Peter Irwin is now well into his first year as the second ever president of the firm, with founding president Bill Rowan becoming the Chairman of the Board.

Located in Guelph, Ontario, a city of 90,000 just west of Toronto, RWDI operates two boundary layer wind tunnels at its facilities which also include extensive model shops, computer modelling studios, a water flume wind simulator, and extensive instrumentation capabilities for monitoring of air quality, weather, noise, vibration, and fluid flows. Diversity in its range of services has been a hallmark of RWDI's growth, with the goal being to create a company that is truly unique in the consulting engineering world.

While RWDI's wind tunnel testing of structures such as tall buildings, long span bridges, and sports facilities constitutes the largest portion of the firm's work, it is constantly expanding its services to the point that major growth is being experienced in such new areas as: vibration analysis, design of structural damping systems, regional airshed modelling, turf microclimate analysis, and building acoustics, to name a few.

Computational Fluid Dynamics (CFD) modelling is yet another tool being employed by the firm to allow for comprehensive approaches to solving fluid flow problems for designers. The firm's CFD modelling projects have ranged from optimizing the ventilation of theatre spaces to improvement of industrial boiler performance.

RWDI's wind engineering projects have included designs for many of the most recognizable projects in the world including the current world's tallest building, the Petronas Towers in Kuala Lumpur and two future candidates, the Taipei International Financial Centre in Taiwan and Seven South Dearborn in Chicago. Major long span bridge projects have included the Second Severn Bridge joining England to Wales, the Charles River Bridge in Boston, and the Skarnsund in Norway. The recent growth in sports facility design has seen RWDI involved in seven retractable roof facilities including the SkyDome in Toronto and Safeco Field in Seattle, as well as, numerous enclosed arenas and open soccer venues in Europe and Asia.

The wind tunnels at RWDI have been used extensively for modelling air quality issues, with a major emphasis on stack design for laboratories on university and industrial campuses. Major facilities at Harvard, Yale, the Texas Medical Center, the Cleveland Clinic, and the Mayo Clinic have been studied in the firm's wind tunnels along with hundreds of other similar facilities.

Details about these areas of study, as well as, the firm's new office in Calgary, Alberta are available at the firm's web site at: www.rwdi.com. For further information, Peter Irwin's email address is pai@rwdi.com.

From the Editor

Contributors to this Newsletter:

B. Bienkiewicz: *Update on Initiatives in Washington, D.C.; Opportunities for Wind Engineering Researchers and Practitioners; Call for Session Proposals.*

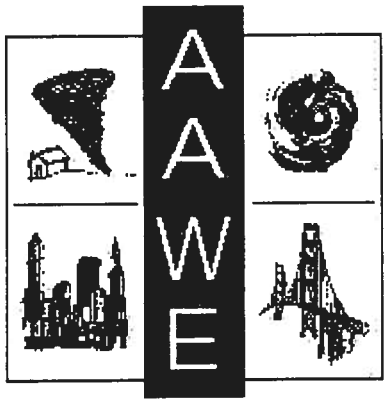
B. Smith: RWDI Profile, Marketing Communications Director, RWDI, Guelph, Ontario.

M. Gaus: *Wind Hazard Discussion Group; Wind Engineering Software; President's Corner.*

Please forward your comments/written contributions to: bogusz@engr.colostate.edu

AMERICAN ASSOCIATION FOR WIND ENGINEERING

www.civil.buffalo.edu/aawe
E-mail: gaus@eng.buffalo.edu
Tel: 716-645-2114 x-2410
Fax: 716-645-3733



American Association for Wind Engineering

OBJECTIVES

The American Association for Wind Engineering (AAWE) was established in 1966. The objectives of AAWE are: (1) the advancement of the science and practice of wind engineering and (2) the solution of national wind engineering problems.

CURRENT OFFICERS

President: M. Gaus (Univ. of Buffalo)
Vice President: B. Bienkiewicz (Colorado State Univ.)
Secretary/Treasurer: P. Sarkar (Iowa State Univ.)
Board of Directors: A. Chiu (Univ. of Hawaii), J. Golden (NOAA), N. Jones (Johns Hopkins Univ.), E. Simiu (NIST), T. L. Smith (T. L. Smith Consulting, Inc.), A. Kareem (Univ. of Notre Dame)

WHY YOU SHOULD JOIN:

AAWE provides networking opportunity with U.S. wind engineering community through regular and special publications, e-mail communication, internet resources, and technical meetings.

HOW TO JOIN

Fill–in the Membership Application/Renewal Form and forward it to AAWE Secretary/Treasurer. For more information visit AAWE web site or contact Mike Gaus (gaus@eng.buffalo.edu, 716-645-2114 x-2410, voice) or Bo Bienkiewicz (bogusz@engr.colostate.edu, 970-491-8232, voice).

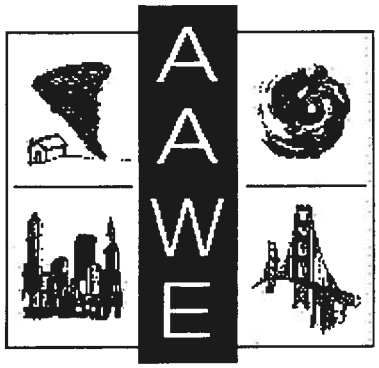
Get involved in formulating
National Wind Hazard Reduction Program

Please Post

Computational Fluid Dynamics

AMERICAN ASSOCIATION FOR WIND ENGINEERING

www.civil.buffalo.edu/aawe
E-mail: gaus@eng.buffalo.edu
Tel: 716-645-2114 x-2410
Fax: 716-645-3733



American Association for Wind Engineering

(CFD) modelling is yet another tool

Membership Application/Renewal

Membership Year: July 1, 2000 - June 30, 2001

Dues (Check appropriate category):

Individual Membership: $40___, Student $10 _____

Corporate Membership; $500 or more: ___ . Corporate membership can include up to five individual members. Complete one form for each individual member.

Please make checks or other payments (in U.S. $ equivalents only) payable to American Association for Wind Engineering and mail to:
Dr. Partha Sarkar, Aerospace Engr. & Engr. Mechanics, 2271 Howe Hall, Room 1200, Iowa State University, Ames, IA 50011-2271

Name: _____

Title:_____

Affiliation _____

City_____ State/Zip_____

Country _____

Ph:_____ Fax:_____

E-mail_____

Your Wind Engineering Interests_____

_____

_____

***Please Note**: To be included in the printed AAWE Membership Roster, your Application/Renewal needs to be received by August 31, 2000.*

Wind Engineering and Related Conferences—Summer 2000 Update

2000

JULY

14-26. Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, Notre Dane, IN, Usa, Co-Chairs: Profs. A. Kareem and A. Haldar; Contact: Prof. A. Haldar, e-mail: pmc@engr.arizona.edu, http://www.nd.edu/~pmc2000

SEPTEMBER

4-7. Third Int. Symposium on Computational Wind Eng.(CWE2000), Birmingham, UK, Chair: Prof. C. J. Baker, Contact: e-mail: cwe2000@pfconsultants.co.uk, http://www.pfconsultants.co.uk/cwe2000

11-14. 4th Int. Colloquium on Bluff Body Aerodynamics and Applications (BBAA4), Bochum, Germany, Chair: Prof. H.-J. Niemann, Contact: e-mail: bbaa4@aib.ruhr-uni-bochum.de, http://www.aib.ruhr-uni-bochum.de/bbaa4

2001

MAY

21-23. ASCE Structures Congress & Exposition, Washington, DC, Contact: e-mail: structures.congress@nist.gov, http://www.asce.org/conferences/structrures2001

JUNE

4-6. 10th American Conf. on Wind Eng. (formerly US National Conf. on Wind Eng.), Clemson, SC, USA, Contact: Prof. S. S. Schiff: e-mail: schiff@mailhost.ces.clemnson.edu

JULY

2-6. 3rd European & African Conf. on Wind Eng., Eindhoven, The Netherlands, Chair: Dr. J. Wisse, Secr: Dr. C. Geurts, Contact: e-mail: congressoffice@tue.nl, http://www.bwk.tue.nl/bwk/events/3eacwe

OCTOBER

21-26. 5th Asia-Pacific Conf. on Wind Engr. (APCWE V, formerly APSOWE V), Kyoto, Japan, Chair: Prof. M. Matsumoto, Contact: e-mail: apcwe5@brdgeng.gee.kyoto-u.ac.jp, http://wwwsoc.nacsis.ac.jp/jawe/apcwe5

2002

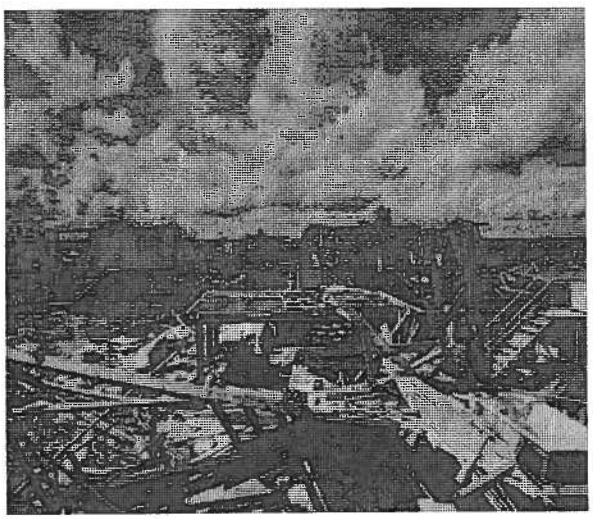
APRIL

4-6. ASCE Structures Congress & Exposition , Denver, CO, USA, Contact: e-mail: schnabel@rmi.net, http://www.asce.org/conferences/structures2002

2003

JUNE

2-5. 11th Int. Conf. on Wind Eng., Lubbock, TX, USA, Contact: Prof. K. C. Mehta: e-mail: kishor.mehta@coe.ttu.edu, http://wise.ttu.edu



Cyclone Tracey, Darwin, Australia, 1974
(Photo provided by J. Minor and L. Cochran)

Lessons Learned in the U.S.?

AMERICAN ASSOCIATION FOR WIND ENGINEERING
WWW.CIVIL.BUFFALO.EDU/AAWE

c/o Department of Civil Engineering, Room 212 Ketter Hall
Univ. at Buffalo — Tel: 716-645-2114, X-2410
State University of New York — Fax: 716-645-3733
Buffalo, New York 14260-4300 — E-mail: gaus@eng.buffalo.edu

President
Dr. Michael P. Gaus
Dept. of Civil Engineering
University at Buffalo
State University of New York
Buffalo, NY 14260-4300

Vice-President:
Dr. Bogusz (Bo) Bienkiewicz
Wind Engr. & Fluids Laboratory
Dept. of Civil Engineering
Colorado State University
Fort Collins, CO 80523

Secretary/Treasurer: Dr. Partha Sarkar
Dept. of Aerospace Eng. & Eng. Mechanics
Iowa State University

American Association for Wind Engineering

Objectives:

The advancement of science and practice of wind engineering

The solution of national wind engineering problems

Established 1966

Corporate Members of AAWE:

Boundary Layer Wind Tunnel Laboratory, Univ. of Western Ontario
www.blwtl.uwo.ca
Cermak Peterka Petersen, Inc.
www.cppwind.com
Factory Mutual Engineering and Research Group
www.factorymutual.com
Lockheed Martin Technologies Co.
www.lmco.com
Rowan Davies Williams & Irwin Inc.
www.rwdi.com
Wind Engineering and Fluids Laboratory, Colorado State Univ.
www.windlab.colostate.edu
Wind Engineering Research Center, Texas Tech Univ.
www.wind.ttu.edu

American Association for Wind Engineering
c/o Dept. of Civil Engineering
Room 212 Ketter Hall
University of Buffalo
Buffalo, NY 14260-4300
www.civil.buffalo.edu/aawe