



American Association
for Wind Engineering

THE WIND ENGINEER

December 2004

In this Issue:



HAZUS Hurricane Wind Loss
Model available from FEMA
page 8

BREAKING NEWS

President Bush Signs Wind Hazards Bill

Story on page 2

Performance of Storm Shelters During Hurricanes Charley and Ivan

Marc L. Levitan and John D. Holmes

The 2004 hurricane season provided several opportunities for investigation of the performance of hurricane shelters. The authors spent several days in the field immediately following hurricanes Charley and Ivan, documenting the performance of hurricane shelters. The primary focus of this research was to gather information useful to the development of the ICC/NSSA Storm



Significant end wall failure at the newly constructed Turner Agri-Civic Center shelter in Arcadia Florida during Hurricane Charley

(Continued on page 6)

Proposed Changes to ASCE 7 Wind Load Provisions	2
PhD Fellowships at TTU	2
AAWE Update Elections 10 ACWE News IAWE Membership IAWE Logo	3
AAWE Board of Director Nominees	4
ATC Publishes Field Manual for Post-Storm Evaluation of Buildings	8
Call for Nominations for AAWE Awards	9
Call for Papers for Cable Dynamics Symposium	10
PhD Assistantships at LSU	10
ICC Hurricane Symposium and Meetings in February	10
AAWE Membership Application/Renewal Form	11
AAWE Contact Information	12

Membership Renewal Time

AAWE membership dues for the 2005 Calendar Year are now due. Current members should have a renewal form enclosed with their newsletter. Lapsed members or new members should use the form on page 11.

THE ASSOCIATION NEEDS YOU: Your membership in AAWE helps support research, development, education, and technology transfer activities in the field of wind engineering. This support was instrumental in the recently successful effort to create a National Windstorm Impact Reduction Program (see page 2) and to continuation of the wind engineering conference series (see page 3 for 10ACWE update).

MEMBERSHIP BENEFITS: Closer to home, membership in AAWE keeps you up-to-date with the latest news and developments in the field through the AAWE newsletter and web site. Members receive discounted registration at AAWE conferences and meetings, including the upcoming 10th Americas Conference on Wind Engineering to be held in Baton Rouge, Louisiana on May 31-June 4, 2005. Association members also receive discounts on other products and services, such as proceedings of past wind engineering conferences (available on the web at www.AAWE.org). Members are eligible for AAWE Awards recognizing Outstanding Dissertations and Distinguished Service (nominations for which are due on March 1, 2005 as described on page 9).

Proposed Changes to ASCE 7 Wind Load Provisions

The revision to the ASCE 7 standard, Minimum Design Loads on Buildings and Structures, is nearing completion and will be available sometime next year. According to information provided by ASCE, the list below summarizes the major changes proposed for the wind load chapter of ASCE 7-05:

1. Clarified and expand the application of Method 1 – Simplified Method
2. Excluded torsionally sensitive buildings from using Method 1.
3. Modified the pressures for parapets and clarify their application for low-slope roofs
4. Added a definition for eave height and clarify footnote 8 of Figure 6-10.
5. Added provisions for freestanding walls and solid signs
6. Added provisions for canopies and free roofs
7. Clarified exposure categories for main wind force resisting systems and components and cladding
8. Provided objective and enforceable criteria for using climatic data to determine the basic wind speed in special wind regions and other non-hurricane-prone regions.
9. Clarified that the basic wind speed obtained from regional climatic data may be less than Figure 6-1
10. Modified provisions for rooftop equipment
11. Expanded required protection of glazing in wind borne debris regions; clarify that it's required when loads are determined using Method 3; and update referenced standards

Additionally, although not part of the standard, much new material has been added to the commentary. Some of the highlights are figures and text clarifying the application of the minimum 10 psf load on the MWFRS and torsion checks for low rise buildings, correlation of ASCE 7 design wind speeds with Saffir Simpson Hurricane Categories, new information on approximate natural frequencies and damping values, and determination of aerodynamic loads on tall buildings using an interactive database.

President Bush Signs Bill Authorizing Windstorm Impact Reduction Program

More than five years in the making, the National Windstorm Impact Reduction Program was approved by Congress and President Bush and signed into law on October 25, 2004. Language to create the new program was included in the National Earthquake Hazards Reduction Program (NEHRP) Reauthorization Act of 2003 (H.R. 2608).

The new wind hazard reduction program is modeled after the successful NEHRP program. The Office of Science and Technology Policy (OSTP) will establish an interagency working group to study the negative impacts of wind on buildings and structures and develop cost-effective ways to mitigate those impacts. The working group will include representatives from the Federal Emergency Management Agency, National Institute of Standards and Technology, the National Oceanic and Atmospheric Administration, and the National Science Foundation. The amount authorized for the program is \$72.5 million over three years. The next step in the process is the battle for appropriations to fund the program.

Wind Science and Engineering PhD Fellowships Available at Texas Tech

A unique multidisciplinary doctoral program in wind science and engineering has been developed at Texas Tech University. Students take core courses in the disciplines of wind engineering, atmospheric sciences, economics, GIS, and ethics, as well as three laboratory courses. An additional six courses in one field provides a degree of specialty. A one-semester internship is also required. The four-year curriculum attracts students of diverse academic and social backgrounds.

A number of wind science and engineering fellowships are currently available, along with other opportunities for financial support. More information can be found on the WISE program web site at www.wind.ttu.edu/igert, or contact the program director Dr. Kishor Mehta at (806) 742-3479 extension 323 or Kishor.Mehta@TTU.EDU.

AAWE NEWS AND UPDATES

Officer Elections

At the end of the year, three members of the Board of Directors will complete their four-year terms and the current President-Elect will take over as President. This transition requires an election be held to fill three Board seats and select a new President-Elect. Board members whose terms are expiring are Mr. Tony Gibbs, Dr. Nicholas P. Jones, and Mr. Thomas L. Smith.

AAWE members in good standing should have received a ballot along with this newsletter. Members are encouraged to complete and return this ballot along with their 2005 membership renewal form. Questions about the ballots or election process should be addressed to the AAWE Secretary-Treasurer Dr. Steve Cai (see back page for contact information).

The official nominee for President-Elect is Dr. Leighton Cochran. The nominees for the three seats on the Board are Mr. James Delahay, Dr. Jon Galsworthy, and Dr. Timothy Reinhold. Short biographical sketches for each nominee are provided on pages 4-5.

AAWE Applies to Join IAWE

The American Association for Wind Engineering has formally applied for membership in the International Association for Wind Engineering (IAWE). The IAWE previously existed for a number of years as an informal association whose primary function was coordination of the International Conferences on Wind Engineering. At an organizational meeting in Lubbock at the 11th ICWE, bylaws were ratified and the Association became a more formal entity. The primary goal of the IAWE is to promote advancement of knowledge in wind engineering and international cooperation. IAWE objectives include organization and coordination of international and regional wind engineering conferences, promoting and facilitating the interchange of ideas and knowledge, and encouraging the formation and enhancement of member organizations, which consist of national and regional wind engineering societies.



Update - 10th Americas Conference on Wind Engineering -

May 31-June 4, 2005
Baton Rouge, Louisiana, USA

Abstracts Still Being Accepted for Posters and Professional Track Presentations

Over 175 abstracts have been received for the conference. Acceptance notifications will be transmitted to authors in late January or early February. Although the submission date has passed for the oral presentations, abstracts for poster and professional track presentations are still being accepted.

The conference schedule is taking shape. Tuesday, May 31 will consist of several parallel seminars and professional development workshops, with topics for practitioners and researchers alike. Seminars and workshops will continue on Wednesday morning, along with an AAWE membership meeting.

The main part of the conference will kick off after lunch on Wednesday, June 1. Fittingly for the first day of the 2005 Hurricane Season, three invited speakers will give plenary session, state-of-knowledge reviews on the topics of hurricane wind fields, hurricane loss modeling, and hurricane hazard mitigation. Thursday and Friday will open with plenary sessions followed by parallel presentation tracks which continue until noon on Saturday. More information is available at www.10ACWE.lsu.edu.

IAWE Logo Design Contest

The International Association for Wind Engineering is soliciting proposals for a logo. The IAWE Executive Board decided to organize an open competition among the wind engineering community rather than engage a commercial design firm. Proposals are due May 31, 2005. The best logo design will be selected during the Executive Board meeting in July 2005, in Prague, Czech Republic. For more information, contact Dr. Giuseppe Piccardo, IAWE Secretary General, at piccardo@diseg.unige.it.

Dr. Leighton Cochran, C.P. Eng.

Dr. Leighton Cochran is a Senior Associate at Cermak, Peterka, and Petersen, Inc. in Ft. Collins, Colorado. He has a broad range of experience in research and consulting studies of wind loads on buildings, pedestrian level winds, topographic effects, wind energy, and environmental studies.

A native of Australia, Dr. Cochran obtained a BE from University of Queensland in 1979. After several years of consulting, he went back to school to obtain an MS at Colorado State University. That was followed by four years as Wind Tunnel Manager for Vipac Engineers and Scientists in Melbourne, Australia. He then returned to CSU to obtain his Ph.D. under Jack Cermak in 1992. He continued on at CSU as a Research Scientist and then joined CPP, where he has been for over 10 years.

Dr. Cochran is very active in the profession, participating in numerous professional engineering societies and technical committees. This includes chairing the Wind Effects Booklet Task Committee for the ASCE Wind Effects Committee, and serving as Secretary of the ASCE Aerodynamics Committee. He is also active in other several other committees related to wind engineering.

Dr. Cochran maintains an active publication record. He has one book chapter and 14 peer-reviewed journal articles in print with two more manuscripts currently under review. He has also authored or coauthored over 30 conference papers and hundreds of technical reports. He has organized and moderated numerous conference sessions and is becoming a sought after speaker himself. Dr. Cochran has provided several invited/keynote lectures at recent international meetings, on the topic of new developments in commercial wind engineering.



Leighton Cochran (right)

Mr. James M. Delahay, P.E.

Mr. James Delahay is President/CEO of LBYD, Inc., a 50-person consulting structural and civil engineering firm in Birmingham, Alabama. Mr. Delahay has been the structural engineer of record for hundreds of commercial and industrial building projects. He has 24 years experience in the structural engineering field, holding the position of principal with LBYD for the last 18 years. He received both his BS and MS degrees in Civil Engineering from the University of Alabama. He is a registered professional engineer in 14 states.

Mr. Delahay has been involved in building code development since 1991 representing the Structural Engineer's Association of Alabama (SEAOAL) on the Southern Building Code Congress International's (SBCCI) Wind Load Committee. He has been a member of the ASCE 7 Task Committee on Wind Loads since 1996. He is currently serving as the vice-chairman of that group. He is the co-author of the book entitled "Guide to the Use of the Wind Load Provisions of ASCE 7-02", published by ASCE Press.

He has presented numerous seminars nationwide on both the IBC and ASCE wind load provisions, including a new ASCE/SEI series of lunch time web-based seminars.

From 1999 to 2002, Mr. Delahay served on the Structural Committee of the International Building Code, as one of three practicing engineers representing the National Council of Structural Engineer's Associations (NCSEA). In 2002, was elected chairman of that committee, the first practicing engineer to hold the position. He is also the chair of the NCSEA Code Advisory Committee, which represents the interests of structural engineers to the Building Code development community. He is currently the president of the Applied Technology Council, where he represents NCSEA.



Dr. Jon K. Galsworthy, P.Eng.

Dr. Jon Galsworthy is an Associate Director of the Alan G. Davenport Wind Engineering Group. He also holds an appointment as an Assistant Professor in the Department of Civil and Environmental Engineering at the University of Western Ontario in London, Ontario, Canada. Recent work includes a number of international projects involving wind effects on tall buildings, industrial chimneys and stadia. While completing his Ph.D. at the University of Western Ontario, he worked as a research engineer at the Boundary Layer Wind Tunnel Laboratory. His work there concentrated on wind tunnel testing and full-scale monitoring of tall reinforced concrete chimneys.

Dr. Galsworthy is a registered Professional Engineer in the Province of Ontario, and is a member of the Canadian Society of Civil Engineering and the American Society of Civil Engineers. His research interests are in the general areas of wind engineering and structural dynamics for multiphase systems. Specific areas include: wind effects on



Jon Galsworthy

chimneys and towers including grouped structures; aeroelastic effects; damping systems to mitigate excessive wind-induced vibrations; bluff body aerodynamics including vortex shedding; and validation of wind tunnel testing.

Tim Reinhold

**Dr. Timothy Reinhold, P.E.**

Tim Reinhold earned BS, MS and Ph.D. degrees in Engineering Mechanics from Virginia Tech in 1973, 1975 and 1978, respectively. He began his professional career as a National Research Council Postdoctoral Associate at the National Institute for Standards and Technology in 1978 and later continued at NIST as a research structural engineer. At NIST he worked as support staff for development on national seismic standards, analyzed winds for Hurricane Frederic, participated in several large failure investigations and organized an International Workshop on Wind Tunnel Modeling for Civil Engineering applications. From 1983 to 1985 he worked for the Canadian firm Morrison Hershfield Theakston and Rowen that later became RWDI where he worked as a project engineer on wind tunnel and snow investigations for structures throughout north America. In 1995 he joined Applied Research Associates in Raleigh, North Carolina where he headed up their wind tunnel modeling efforts. In 1990, Dr. Reinhold joined the Danish Maritime Institute as chief engineer for aerodynamic s. He participated in the commissioning of their 14-meter wide boundary layer wind tunnel and helped direct wind studies for the Great Belt Bridge in Denmark and the European Southern Observatory in Chile. In 1992, Dr. Reinhold joined the faculty of the Civil Engineering Department at Clemson University and rose to the rank of Professor before leaving Clemson in 2004. He is now vice-president for engineering at the Institute for Business and Home Safety in Tampa, Florida.

Dr. Reinhold has conducted research on wind effects and structural capacity for most of his professional career. In addition to directing numerous studies for tall buildings and specialty structures, he has been deeply involved in research relating to the performance of housing and low buildings in hurricanes and other severe wind events. His work has involved model and full-scale laboratory studies as well as field studies. He has participated in studies of building performance in numerous hurricanes and chaired the organizing committee for the ASCE Conference on Hurricanes of 1992. He has served on the ASCE 7 and SBCCI wind loads subcommittees and is a past member of the Board of Directors for the American Association for Wind Engineering.

(Continued from page 1)

Shelter Standard. This new standard will address residential and community shelters for hurricanes and tornadoes. It has been under development for two years, and will likely be completed and published by the International Code Council in 2006.

In the aftermath of Hurricane Andrew, the State of Florida began requiring that buildings designated as shelters be designed to more stringent criteria than the local building code minimum, known as the Enhanced Hurricane Protection Area (EHPA) criteria (Kilcollins, 2004). Hurricanes Charley and Ivan struck areas of Florida where a number of facilities had been constructed to the EHPA criteria, thus affording the opportunity to investigate how well these new criteria worked. Preliminary reports by several researchers to the Florida Building Commission indicated that the maximum wind speeds in these storms did not reach design wind speeds in the areas where the shelters were located, so the EHPA facilities and criteria were not 'fully tested' by these hurricanes. Nonetheless, the storms provided valuable information.

Performance Observations: Implications for the ICC/NSSA Storm Shelter Standard

Over a dozen school campuses were visited housing some buildings designed to Florida's EHPA standard and others that were not. In every case there was minor to moderate cladding damage to at least some of the campus buildings not designed to EHPA criteria, while there was no visible damage to EHPA buildings. This observation is significant in the sense that the set of EHPA requirements is one of the primary resource documents used in development of the ICC/NSSA Storm Shelter Standard.

The Turner Agri-Civic Center (photo on page 1) suffered what appeared to be a significant structural failure of a gable end wall and major portion of the roofing, which reportedly injured 12 people. Lawyers from the county-owned facility prohibited our access to the site. Since this structure was purportedly designed to EHPA standards, it will be important to assess the causes of the failure, once the legal proceedings have concluded and that data may become available. If the structure is ultimately determined to have been designed and constructed in ac-



Damaged building at Zolfo Springs Elementary School, courtesy of Hurricane Charley

Adjacent classroom building that was built to EHPA criteria was undamaged



cordance with the EHPA standards but failed anyway, this will represent a very important finding. If design and/or construction flaws are found to be the cause, it will likely not prove to be significant to the further development of the ICC/NSSA standard.

Portable classroom and storage buildings presented a significant source of flying debris and rollover hazards, often experienced roofing and superstructure damage. Several minimally anchored portable buildings suffered anchorage failures, including two small buildings that rolled over and impacted adjacent structures. The lightweight construction of these portable units made for mainly lightweight debris, which was not observed to have caused any significant damage to the shelters or other permanent construction on the campuses. However, flying debris and rollover hazards could present more serious threats in hurricanes with greater wind speeds.



Rollover hazards

Hurricane shutters, particularly accordion shutters, were observed to have failed in a number of instances, due to several causes. In some cases failure was apparently due to suction pressures, as shown below. In a disturbingly large number of cases, accordion shutters were either not closed and latched properly before the storm, or the latches failed or popped open during the storm. Some of the designs had keyed locks, which presents a critical operations/maintenance/training issue - making sure that the keys are available to the personnel operating the shelter.



Failed shutters at Sherwood Elementary School in Pensacola (Hurricane Ivan)

We heard stories from shelter managers about shelter doors being opened and closed during the storms. In some cases people left the shelter during the eye of the storm to investigate damage, and returned when the wind picked up again. We heard one firsthand report from a shelter manager of a sheriff's deputy at one campus opening the exterior door to go back and forth between two different shelter areas during the height of the storm. We also heard stories of shelter doors being opened during the storm to let in late-arriving people. No matter how pressure tight or debris impact resistant the door systems are – they do no good towards preventing internal pressurization when opened. When the shelter doors open directly into the shelter space, purposeful opening also subjects the occupants to exposure to debris. This suggests that baffled entries may be preferable, particularly in situations with high levels of debris exposure. It also suggests

that shelter spaces should be connected internally, if at all possible. The sheriff's deputy was opening the doors and traveling between two different shelter areas on the same campus because the food was only in one part of the shelter, and the single nurse was in the other part of the shelter. The deputy was shuttling food, water, and medical supplies between the two shelter areas.

Another performance problem identified was excessive water penetration through minor cladding damage to shelter roofs. As rainwater flooded into the roofs, it saturated ceiling tiles and insulation, causing them to fall into the shelter areas in some cases (as below). Shelter residents had to be moved to other parts of the building during the storm.



Collapsed ceiling in shelter area at West Florida High School of Advanced Technology, during Ivan

Acknowledgements

Travel funding for this study was provided by the International Code Council, in part through a grant from the Federal Emergency Management Agency. Additional funding was provided by the LSU Hurricane Center, Louisiana Sea Grant, and the Department of Civil and Environmental Engineering at Louisiana State University .

Reference

Kilcollins, Danny (2004). "Florida's Hurricane Shelter Safety Enhancement Program." *The Wind Engineer*, May 2004 (available at www.aawe.org)

Safety Evaluation of Buildings After Wind Storms and Floods

ATC Press Release

The Applied Technology Council (ATC) is pleased to announce the immediate availability of the ATC-45 *Field Manual: Safety Evaluation of Buildings After Wind Storms and Floods*. Funded by the Applied Technology Council, the ATC Endowment Fund, and the Institute for Business and Home Safety, this 132-page report provides guidelines and procedures for conducting postwindstorm and post-flood building safety evaluations. The purpose of these evaluations is to determine whether damaged or potentially damaged buildings are safe for use, or if entry should be restricted or prohibited.

The ATC-45 *Field Manual* is intended to be used by building officials, building inspectors, engineers, and others involved in postdisaster safety evaluation of building types commonly found in the United States. The *Field Manual* explains three different building safety evaluation procedures. Two of the procedures (Rapid Evaluation and Detailed Evaluation) are discussed in detail. For each of these procedures, the document provides guidance on where to look for damage.

The *Field Manual* gives advice on evaluating structural, geotechnical, and nonstructural risks, and advice on how to rate the safety significance of certain types of damage. In addition, the *Manual* covers related topics of interest to safety personnel, including (a) how to deal with owners and occupants of damaged buildings, and (b) field safety issues. Evaluation forms and posting placards, represented in the document in small-scale size, can be downloaded free of charge from the ATC web site (www.ATCouncil.org).

The *Field Manual* is patterned after the concepts developed in two earlier ATC projects: (1) the ATC-20 project, whereby ATC developed the well known and widely used ATC-20 report, *Procedures for Postearthquake Safety Evaluation of Buildings*; companion ATC-20-1 *Field Manual*, and ATC-20-2 *Addendum*, which contains updated evaluation forms and placards; and (2) the ATC-26 project, whereby ATC developed several sets of procedures for postdisaster safety evaluation of U. S. Postal



Service (USPS) facilities, including procedures for safety evaluation of USPS facilities after wind storms and floods.

The ATC-45 *Field Manual* has been printed in an easy-to-use, pocket-sized format. The document can be obtained from the Applied Technology Council, 201 Redwood Shores Parkway, Suite 240, Redwood City, California 94065 (phone, 650/595-1542; fax, 650/593-2320; e-mail, ATC@ATCouncil.org; web site & online store, www.ATCouncil.org). Price: \$27.00 per copy (plus shipping and sales tax).

HAZUS Wind Loss Estimation Model Now Available

The Federal Emergency Management Agency has recently released the Hurricane Wind Model as part of its new HAZUS-MH multihazard risk assessment tool. It covers communities in Atlantic and Gulf coast regions of the United States.

According to the FEMA web site, this initial version allows the user to assess hurricane winds and compute basic estimates of potential damage to residential, commercial, and industrial buildings. It also allows the user to estimate direct economic losses. Development of the full hurricane wind model will continue, to enable estimates of indirect economic losses and impacts to lifelines. For more information on development and applications of HAZUS, see the November 2003 issue of THE WIND ENGINEER (can't find your hardcopy of that or other issues? – then visit the web site at www.aawe.org for downloadable copies of AAWNE newsletters back to 1995).

To order a FREE copy of HAZUS-MH, visit the FEMA web site at www.fema.gov/hazus.



AAWE Outstanding Dissertation and Distinguished Service Awards

The AAWE Board of Directors recently approved guidelines for two outstanding dissertation awards and a distinguished service award. These awards will be presented once every four years, at the Americas Conference on Wind Engineering. Applications are now being accepted by Dr. Chris Letchford, Chairman of the Awards Committee. The official description of these awards and application procedures are provided below.

The awards for outstanding dissertation were first offered at the Americas Conference on Wind Engineering - 2001 at Clemson University. The



winner of the Robert H. Scanlan Award was: Dr. D. Banks (left) from Colorado State University. Dr. E. G. Sutt, Jr. from Clemson University received the Richard D. Marshall Award.

Outstanding Dissertation Awards

The Dick Marshall Award and Bob Scanlan Award recognize the contributions to Wind Engineering from two distinguished AAWE Members. They are for PhDs in Wind Engineering awarded from a University in the 'Americas Region' of the IAWE (i.e., North America, South America, and Caribbean). Conditions of PhD awards are as follows:

1. Applicants must be members of AAWE at time of application.
2. Applicants must have been awarded a PhD during the 4 years preceding the America's Conference on Wind Engineering. (For 10ACWE (2005), applicants must have satisfied all graduation requirements by March 1, 2005 or graduated after March 1, 2001.)
3. Applicant's PhD dissertation must be in a topic related to Wind Engineering.
4. Applicants should be nominated by their supervisor.
5. Applicants should submit a 2 page resume, 2

potential referees and an extended summary of their dissertation (20 pages maximum) and/or a journal paper based on their work.

6. Each award will be accompanied by a certificate and a prize of \$1000.

Distinguished Service Award

A Distinguished Service Award is also offered by the AAWE. Conditions of this award are:

1. Applicants must have been members of AAWE.
2. Applicants should be nominated by a member of AAWE.
3. Nominations should be accompanied by supporting material including: career highlights, brief resume.
4. Applicants must have demonstrated significant contribution to the field of Wind Engineering in the 4 years preceding the America's Conference on Wind Engineering.
5. Applicants will be evaluated on a variety of criteria including: involvement in AAWE activities, research, consulting, and outreach.
6. The award will be accompanied by a certificate.

Timetable for Awards

1. The awards will be advertised widely within AAWE.
2. The closing date for applications/nominations will be March 1, 2005.
3. Applications/nominations should be sent to the AAWE Awards Committee Chair

Dr Chris Letchford
 Department of Civil Engineering
 Texas Tech University
 PO Box 40123
 Lubbock TX 79409 USA
Chris.Letchford@coe.ttu.edu
 806 742 3476 x328

1

4. Awards Committee comprises Chris Letchford, Nick Jones, Ted Stathopoulos, Bob Meroney
5. Awards will be presented at the 10th ACWE in Baton Rouge in June 2005.

PhD Assistantships Available at LSU

A Ph.D. research assistantship is immediately available for work on an NSF-funded project on bridge and vehicle aerodynamics in a hurricane environment. To learn more about this project, please see the July 2004 issue of *The Wind Engineer* (available online at www.AAWE.org). Applicants with research experience in wind engineering, extreme wind simulation, and dynamics are preferred.

Another Ph.D. assistantship is available for the project "Information Technology-based Performance Monitoring and Evaluation of Bridges". Candidates with experience in sensor technology, nondestructive and dynamics-based bridge performance evaluation are preferred.

Candidates interested in these assistantships should contact Dr. Steve Cai in the Department of

Civil and Environmental Engineering/LSU Hurricane Center at Louisiana State University in Baton Rouge for more information (225/578-8898, Cscai@LSU.edu).

Call for Papers—6th International Symposium on Cable Dynamics

The Sixth International Symposium on Cable Dynamics will be held September 19-22, 2005, in Charleston, South Carolina. Applications addressed include wind effects on high voltage transmission lines, suspension and cable stayed bridges, and guyed masts.

Abstracts are due February 21, 2005. See the conference web site for more information (www.conf-aim.skynet.be/cable).

Hurricane Symposium: Impact of the 2004 Hurricanes on the Built Environment

ICC Press Release

The International Code Council (ICC) is sponsoring a Hurricane Symposium early next year. Presentations at the meeting will examine the impact of the 2004 hurricanes on the built environment, including initial observations, lessons learned and unmet research needs. The Hurricane Symposium will be held on February 11-13 at the Embassy Suites USF/Busch Gardens in Tampa, Florida. There is no charge to attend.

The Symposium will consist of one day of presentations on Feb. 11 and two days of committee meetings on Feb. 12-13. A report of all proceedings of the symposium will be distributed by the International Code Council and the Florida Department of Community Affairs. Expected topics of discussion include the performance of roof, window and door systems, water penetration, the impact of wind-borne debris, mobile home performance, power distribution infrastructures and public communication during the hurricanes.

For more information, visit the Symposium web site at www.iccsafe.org/safety/hurricane.

ICC Standards Committee Meetings to be Held at Hurricane Symposium

Two International Code Council committees developing standards for storm-resistant construction will be meeting on February 12-13 in Tampa, in conjunction with the Hurricane Symposium.

The ICC/NSSA Consensus Committee on Storm Shelters (IS-STM) will be holding its seventh meeting. This committee is developing a brand new standard addressing the design and construction of storm shelters, the first draft of which is nearly complete. More information is available on the IS-STM web site at www.iccsafe.org/cs/standards/is-stm.

The Consensus Committee on Hurricane Resistant Construction (IS-HRC) will be holding its third meeting at the Hurricane Symposium. This committee has responsibility for minimum requirements to safeguard the public health, safety and general welfare for buildings and other structures sited in hurricane prone areas. The starting point for this committee's work is the old SSTD 10-99 Standard for Hurricane Resistant Residential Construction. More information is available on the IS-HRC web site at www.iccsafe.org/cs/standards/is-hrc.

ICC standards meetings are open to the public. All interested parties are invited to attend.

AMERICAN ASSOCIATION FOR WIND ENGINEERING

www.aawe.org
E-mail: aawe@aawe.org
Ph: 970-491-2545
Fax: 970-491-8200



**American Association
for Wind Engineering**

Membership Application/Renewal Membership Year: 1 January - 31 December 2005

Dues (Check appropriate category):

Individual Membership: \$50 ____, Student \$10 ____

Corporate Membership; \$500 or more: ____ .

Note— Corporate memberships 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. Steve Cai
Department of Civil & Environmental Engineering
Louisiana State University
Baton Rouge, LA 70803

Name _____

Title _____

Affiliation _____

Street Address _____

City _____ State/Zip _____

Country _____

Ph _____ Fax _____

E-mail _____

Your Wind Engineering Interests _____

AMERICAN ASSOCIATION FOR WIND ENGINEERING

P.O. Box 161
Fort Collins, CO 80522-0161
USA

Ph: 970-491-2545
Fax: 970-491-8200
E-mail: aaawe@aaawe.org
Web: www.aaawe.org

President

Dr. B. (Bo) Bienkiewicz
Wind Eng. & Fluids Laboratory
Engineering Research Center
Colorado State University
Fort Collins, CO 80523
E-mail: bogusz@engr.colostate.edu
Ph: 970-491-8232

President Elect

Dr. Marc Levitan
LSU Hurricane Center
Suite 3221 CEBA Building
Louisiana State University
Baton Rouge, LA 70803
E-mail: levitan@hurricane.lsu.edu
Ph: 225-578-4445

Secretary/Treasurer

Dr. Steve C.S. Cai
Civil & Environmental Engineering
Louisiana State University
Baton Rouge, LA 70803
E-mail: Cscai@lsu.edu
Ph: 225-578-8898

Board of Directors

Mr. Tony Gibbs
Consulting Engineers Partnership Ltd, Barbados
E-mail: tmgibbs@caribsurf.com

Dr. Nicholas P. Jones
Johns Hopkins University
E-mail: npjones@jhu.edu

Dr. Chris Letchford
Texas Tech University
E-mail: chris.letchford@wind.ttu.edu

Mr. Thomas L. Smith
T. L. Smith Consulting, Inc.
E-mail: TLSMITH@XTA.com

Dr. Ted Stathopoulos
Concordia University
E-mail: STATHO@CBS-ENGR.CONCORDIA.CA

Past President

Dr. Michael P. Gaus
Gaus Associates
E-mail: mgaus@gausassoc.com



**American Association
for Wind Engineering**

Objectives:

- The advancement of science and practice of wind engineering.
- The solution of national wind engineering problems through transfer of new knowledge into practice.

Established in 1966

Corporate Members of AAWE

Boundary Layer Wind Tunnel Laboratory, University of Western Ontario
www.blwtl.uwo.ca

Cermak Peterka Petersen, Inc.
www.cppwind.com

Nexford/Norbord Industries Inc.

Rowan Williams Davies & Irwin Inc.
www.rwdi.com

Wind Engineering and Fluids Laboratory, Colorado State University
www.windlab.colostate.edu

Wind Science and Engineering Research Center, Texas Tech University
www.wind.ttu.edu

THE WIND ENGINEER

Editor: Marc Levitan

American Association for Wind Engineering

P.O. Box 161
Fort Collins, CO 80522-0161
USA