

Philip Dregger, PE, RRC

RICOWI Tours FM

Philip Dregger received his Master of Science degree in civil engineering with honors from the University of Minnesota. He worked as a roofing and waterproofing consultant in St. Paul, Minnesota, before moving to the West Coast, where he is presently a principal of Technical Roof Services, Inc., Pleasant Hill, California.

Mr. Dregger is both a registered Professional Engineer and a Registered Roof Consultant. He has investigated numerous roofing failures and provided expert testimony. He is the author of a number of articles for professional trade magazines and has lectured on a wide range of roofing topics. Mr. Dregger is an active member of the American Society of Testing and Materials and is RCI's representative to RICOWI (Roofing Industry Committee on Wind Issues).

The Factory Mutual Conference Center in Norwood, Massachusetts, served as the setting for the October 28-29, 1994, meeting of RICOWI. RICOWI is an ad hoc committee of industry organizations committed to serving as a forum for discussion and as a clearinghouse for current information on roof wind-related issues.

Mr. George Smith (Factory Mutual Research Corp.) led the RICOWI group on a VIP tour of the

FMRC test center in nearby West Gloucester, Rhode Island. The tour included a dramatic demonstration of the explosive power of eight pounds of dust dispersed and ignited in a confined space, and the introduction of a new Fatigue and Dynamic Analysis Machine (FADAM). FADAM is a simple, yet powerful, technique to evaluate mechanically attached single ply membranes by simulating up to ten years of wind flutter in a 24-hour period. The highly automated test apparatus rapidly oscillates forces to the membrane at predetermined angles to the fasteners and can be used to judge the effects of abrasion, screw back-out, and plate bending. FM anticipates eventually incorporating the technique into the approval process for mechanically attached membranes.

Mr. Smith also mentioned:

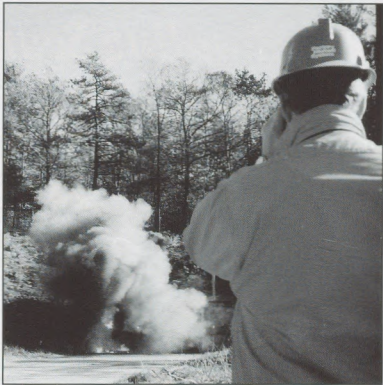
1. Testing on the new 12-ft. x 24-ft. test frame will be required for approvals of roof systems incorporating lightweight insulating fill materials and for approvals of standing seam metal roofing sometime within the next 12 months.
2. FM is now capable of applying a combination of "vacuum" pressures above and "positive" pressures below a test sample on its 12-ft. x 24-ft. test frame.

3. Wind rating performance levels are now available for tests performed on the 12-ft. x 24-ft. test frame, including 1-120, 1-150, and 1-180. FM loss prevention data sheets 1-7, 1-28, and 1-31 will be changed to reflect the new performance levels.

Special presentations were made to the group by Dr. Baskaran (National Research Council, Canada), "Dynamic Evaluation of Roofing Systems"; Dr. Jim McDonald (Texas Tech Univ.), "Metal Edge Flashing Research Update"; and Mr. Tom Smith, AIA, RRC, (National Roofing Contractors Assn.) "ASCE 7-95 Wind Load Changes".

Planned changes to the ASCE-7 *Minimum Design Loads for Buildings and Other Structures* include:

1. Roof coverings will be included as a specific example of elements covered by the minimum loads for "components and cladding".
2. The basic wind speed charts will be based on a "three-second peak gust" rather than the "fastest mile". Most of the continental U.S. is covered by a single 90 mph value.
3. Many more structures will be classified as "partially



(Above) George Smith, FMRC, explains operation of new Fatigue and Dynamic Analysis Machine. (Top left) RICOWI tours FM test facility. (Bottom left) Explosive force of 8 lbs. of dust when ignited.

enclosed" buildings and will require usage of an increased internal pressure coefficient.

Dr. McDonald explained that the long delay in completing the "Metal Edge Research Project" was due to both the unanticipated difficulties in mounting pressure tabs to test flashings and to the total "melt down" of all electronic laboratory equipment by a lightning strike to the weather tower.

Reports of current wind research and wind related activities were given by representatives of the now

21 organizations comprising the executive committee. Recent additions to the executive committee include:

- The Canadian Roofing Contractor's Association (Peter Kaling),
- The Insurance Institute for Property Loss Reduction (Greg Chiu),
- The International Staple, Nail and Tool Association (John Kurtz),
- The Roofing Industry Educa-

tional Institute (Dick Fricklas),

- The Wind Engineering Research Council (Dale Perry).

Some highlights of the executive committee reports include:

1. The third edition of the NRCA *Roofing and Waterproofing Manual* will not include a reference to mortar set tile.
2. RCI's three-level educational program now dedicates up to ten hours of instruction on wind issues covering Factory Mutual, model building codes, and ASCE-7 considerations.
3. The SPRI *Wind Design Guide for Edge Systems Used With Low-sloped Roofing Systems* is now available.

Extended discussions focused on better coordination of disaster response efforts by the member organizations and to the possibility of establishing a protocol for disaster investigation work. Ideas to establish a peer review procedure for proposed code and design standards were presented. Each of these items was delegated to a subcommittee and will be taken up at the next meeting.

The next RICOWI meeting will be held on Saturday, March 25, 1995, in Sparks, Nevada, in conjunction with the RCI National Convention. The fall 1995 meeting will be held in Ottawa, Canada, on September 29 and 30, 1995, and will include a tour of the NRC Wind Tunnel Test Facility.

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