

I/UCRC Wind Hazard and Infrastructure Performance (WHIP) Center

Center Director Report to IAB

Year 1

(March 1, 2019 – February 29, 2020)

Introduction

The WHIP Center was established in 2019, which is the first year of the Center. It is a collaborative Center between the two institutions, Texas Tech University (TTU) located in Lubbock, TX and Florida International University (FIU) located in Miami, FL. Florida Institute of Technology (FIT) located in Melbourne, FL is an affiliate institute to Texas Tech University.

During the first year six companies were members of the Center.

- AIR-WORLDWIDE – A Verisk Business, Boston, MA
- Berkshire Hathaway – Specialty Insurance, Boston, MA
- GAF Materials, Parsippany, NJ
- Permasteelisa Group, Italy
- SCOR – The Art & Science of Risk, Chicago, IL
- StateFarm – Insurance, Bloomington, IL

Annual (inaugural) meeting of the Industry Advisory Board (IAB) was held on March 21-22, 2019 at Texas Tech University and Semi-annual meeting of IAB was held on October 23 -24, 2019 at Florida International University. In addition to in-person meetings of IAB there were three virtual meetings via conference calls. They were on April 8, 2019, June 11, 2019 and January 15, 2020.

This report gives summary of significant matters discussed at each meeting. In addition, it describes targeted growth efforts of the WHIP Center.

Summary of Meeting on March 21 -22, 2019

At this inaugural meeting representatives from eight companies participated. In addition to the member companies, RMS risk management and AIG Insurance companies contributed to the proceedings of the meeting. Since, the meeting took place soon after the award from the National Science Foundation companies were allowed to participate without signing of the Membership Agreement. The meeting also had in attendance Program Director Dr. Andre Marshall from NSF; Assessment Coordinator Dr. Denis Gray designated by NSF and faculty from the institutions.

A total of twelve proposals for research projects were presented (paper copies were sent to IAB in advance) and discussed at the meeting. Representatives from the eight companies selected six projects for research during the first year. The selected projects were:

- WHIP2019_01: Estimating surface wind conditions in landfalling hurricanes from dual-doppler wind fields; PI: John Schroeder, TTU

- WHIP2019_02: Prediction of wind and surge damage to buildings by hurricane; PI: Doug Smith, TTU
- WHIP2019_03: Investigation of wind performance of roofing elements using full-scale experimentation; PI: Arindam Gan Chowdhury; co-PI: Ioannis Zisis, FIU
- WHIP2019_04: Investigation of wind-driven rain and wind-induced vibration effects on curtain wall systems; PIs: Amal Elawady and Seung Jae Lee; co-PIs Arindam Gan Chowdhury and Ioannis Zisis, FIU
- WHIP2019_05: Global compilation of best building practices in residential construction for withstanding wind hazards; PIs: Aris Papadopoulos and Ioannis Zisis, FIU
- WHIP2019_06: Estimation of interior damage due to wind-driven rain ingress into mid/high rise buildings; PI: Jean-Paul Pinelli, FIT

In the Executive Session the IAB elected Peter Dailey from RMS as Chair and Kevin McGrath from GAF as Chair-elect for a two-year term.

Summary of Conference Call Meeting on April 8, 2019

In this call meeting, change in scope of each of the approved research projects were, if any, discussed. In addition, Mentors for some of the projects were identified.

Summary of Conference Call Meeting on June 11, 2019

Subsequent to the inaugural meeting, AIG Insurance company had a complete change in its higher administration and focus on business resulting in pulling out of the WHIP Center. RMS risk management company's legal team did not accept indemnification clause that is required in Membership Agreement by the Universities; the company pulled out of the WHIP Center. Result of these pull-out by two companies was the reduction in the research funds available for Year 1. The Center Director discussed the situation with Kevin McGrath, Chair-elect of IAB (Peter Dailey was no longer involved with WHIP since his company RMS pulled out) and came-up with options to consider. The Site Directors at each institution discussed the situation with project PIs and came to a suggestion of dropping/delaying Projects 01 and 05 for Year 1. This suggestion was put forward to IAB members in this conference call. The IAB members (now six members) approved the suggestion unanimously. In addition, the remaining four project budgets were reduced by 10% to accommodate reduction in research funding.

Concerted efforts to increase membership of WHIP Center was also discussed in this meeting.

Summary of Semi-Annual Meeting of October 23 – 24, 2019

For this meeting invitations were sent to 21 companies, 4 government agencies, 3 industry associations, and 2 institutions to observe and participate in the open part of the meeting (day 1). These invitations generated attendance by representatives from 6 companies, 2 government agencies, and 2 institutions. In addition to IAB members, FIU administrators, faculty and students from the institutions participated in the meeting. The participation by non-members and invited two institutions allowed them to understand formulation of WHIP Center and potential for joining the WHIP Center.

The proceedings at this meeting included progress reports of the four funded projects, discussion of overarching subject area of Climate Change and its impact, and articulation by IAB members and participants of the type of research they would like the Center to pursue.

Mentors for the four projects (Tim Doggett of Berkshire-Hathaway for 02 ; Ming Shiao of GAF for 03; Karthik Ramanathan of AIR WORLDWIDE for 04; and Junaid SERIA of Permasteelisa for 06) suggested that Project PIs stay in touch with mentors on a regular basis and that a virtual meeting of IAB and faculty for be organized in mid-January for progress reports.

Summary of Conference Call Meeting of January 15, 2020

Progress reports were presented by PIs of the four projects. Questions and answers followed each of the presentation of the projects. The PIs were reminded to stay in touch with their respective mentors and be ready to provide final draft of the report prior to March meeting. For SCOR company Maurizio SAVINA was represented in place of Junaid SERIA.

Changes in By-laws were presented. There was discussion on the Article 8 related to patent submission and maintenance. For now, the By-laws will remain the same as written in the final draft; they may be amended in the future. The final draft will be voted at the next in-person meeting.

Information on recruiting of new members was passed on to IAB.

Targeted Growth

Concerted efforts were made during the year to publicize the WHIP Center and to influence companies to join the Center. Companies were invited to semi-annual IAB meeting held on October 23 - 24, 2019 in Miami, FL. Also, Center Director visited three companies (Simpson Strong-Tie, Walter P Moore Consulting, and CDC-USA) in August 2019 in Dallas area. Outreach efforts included presentations and sessions at national and international conferences:

- A panel session at the ASCE Structures Congress in Orlando, FL in April 2019
- A presentation at the 15th International Conference on Wind Engineering in Beijing, China in September 2019
- A presentation on tornado hazard at the ILS conference in Bermuda in October 2019
- Participation in the panel session at the FLASH Annual conference in Clear Beach, FL in November 2109

In January 2020, Drs Delong Zuo and Kishor Mehta visited the campus of USAA insurance company headquarters in San Antonio, TX to talk to the personnel of the company. It was a 90-minute session with about 15 people from the company attending. This visit was successful since USAA has agreed to be member in Year 2.

Two institutions, University of Alabama and University of Connecticut, were invited to semi-annual IAB meeting held in Miami. University of Connecticut has Eversource Center dealing with electric power grid. An institutional site at University of Connecticut along with power industry members can be complementary to WHIP Center. Center Director Kishor Mehta presented a one-hour webinar on WHIP Center organized by the University of Connecticut on January 24, 2019.

University of Alabama has structural testing laboratory with strong floor. Structures of wood and steel can be tested in the laboratory. Wood and steel industry can make buildings more resilient with innovative structural systems. University of Alabama is pursuing to attract material/component companies to establish a site as part of WHIP. These two sites with companies in different research focus can

complement current research in WHIP Center. The institutions are waiting for the new solicitation from NSF.

Moving forward I anticipate one or two companies and one federal agency to join the WHIP Center in year 2 (2020), though none of them have committed as yet. Membership fee due date is March 1 as specified in the Membership Agreement. Current six members are committed with the date of annual meeting planned on March 26 – 27, 2020.