FLASH
Strengthening Homes & Safeguarding Families

Partners in Prevention

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Partner Spotlight - Dr. Ernst W. Kiesling

Dr. Ernst W. Kiesling has provided 48 years of teaching, research, leadership, administration and public service during his career at Texas Tech University where he leads the storm shelter research effort within the Wind Science and Engineering Research Center. Perhaps most notably, he and his colleagues developed the Tornado Safe Room, a life-saving, above-ground storm shelter.

Dr. Kiesling serves on the International Code Council (ICC) Committee that developed the NSAA-ICC 500 storm shelter standard, and was instrumental in founding the National Storm Shelter Association (NSSA). NSSA is a non-profit trade association dedicated to quality in the shelter industry, and he currently serves as Executive Director of the Association.

Ernst Kiesling, the youngest of six children, was born and reared on a farm and ranch in West Texas. His mother's death when he was an infant impacted his early years. His father never remarried. Ernie grew up with close family ties, a strong work ethic, and a lot of time to imagine a future that lay beyond the boundaries of the family farm. There was no television and only limited travel or radio and newspaper coverage.

Ernie attended a rural elementary school with about 40 other students in eight grades in a three-room schoolhouse. He went on to be a 1951 graduate of San Angelo High School and attended San Angelo (Junior) College for two years. He earned a Bachelor of Science degree in mechanical engineering from Texas Technological College and a Master of Science Degree and Ph.D. in applied mechanics from Michigan State University.

He became a faculty member teaching civil engineering at what became Texas Tech University. He served as department chair for 20 years. During those years, a number of wind-related programs were initiated.

Shortly after Ernie became department chair, the 1970 Lubbock Tornado struck, providing a large laboratory of damaged buildings. Several young faculty members seized that opportunity to learn about wind-induced building damage. They published a comprehensive report that became valuable to building designers. That landmark report debunked myths about tornado damage and tornado wind speeds. The Lubbock Tornado gave birth to a wind research program at Texas Tech, as well as extensive damage documentation studies of subsequent tornadoes, and to Ernie's keen interest in disaster safety. The concept of the safe room grew out of post-storm damage documentation studies and jump-started his five-decade career in storm shelter development.

Now retired from teaching, the National Storm Shelter Association (NSSA), where Ernie serves as Executive Director, occupies most of his professional time. He served on International Code Council committees that developed the NSSA/ICC 500 Standard and Commentary which are now providing educational support for architects, engineers, and others involved with storm shelters. Especially active are school designers in jurisdictions that have adopted the International Building Code 2015 Standard, which requires new schools to include safe rooms. Seminars and workshops along with individual consultations on safe room design and construction are among his current involvements. He and his colleagues are posturing through NSSA and Texas Tech for active participation in hazard mitigation programs following Hurricane Harvey.

Driving forces advancing cause of resilience and the future of resilient building

It is difficult to identify the most significant driving forces advancing the cause of resilience today. But notable is the in-depth media coverage of natural disasters; development, adoption, and enforcement of building codes; the network of programs by FLASH, FEMA, NIST, NSF, ICC, ASCE, and others; and the utilization of improved technology and materials.

Progress in all the endeavors mentioned above contribute to the future of resilient buildings. Overarching all of this is smarter design that actively responds to human needs and environmental conditions that engage improved instrumentation and new technologies, as well as improved building materials and methods. Innovations might be expected first in smart, tall buildings but will trickle down to other building types. Studies and publications should highlight improved performance of new buildings to further encourage innovation and technology. Changes in overall performance and decreases in damage will at best be slow since buildings already built comprise a high percentage of the total built environment.

When we look only at current challenges and the problems at hand, it is easy to become discouraged and even dissuaded from attempting to improve or change things. It might be helpful to reflect back in time, say, 10 years or even a couple of generations to compare our present well-being to that past. Most of us would likely say we don’t want to go back. So, let’s keep looking and moving forward!