NIST Issues National Windstorm Impact Reduction Program Strategic Report

By Wanda D. Edwards, PE
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"The National Windstorm Impact Reduction Program (NWIRP) was established by Congress to achieve measurable reductions in the loss of life and property from windstorms through a coordinated federal effort, in cooperation with other levels of government, academia, and the private sector, aimed at improving the understanding of windstorms and their impacts and developing and encouraging the implementation of cost-effective mitigation measures to reduce these impacts."[1]

In September 2015, the National Institute of Standards and Technology (NIST) was named as the lead agency for the NWIRP, with primary responsibility for planning and coordinating the plan and interfacing with other federal agencies. The final strategic report has been issued, and it details a program "of windstorm research, development, implementation, education, and outreach activities performed by the NWIRP-designated program agencies and private-sector organizations."[2]

GOAL A. IMPROVE THE UNDERSTANDING OF WINDSTORM PROCESSES AND HAZARDS.

- **Objective 1:** Advance understanding of windstorms and associated hazards.
- **Objective 2:** Develop tools to improve windstorm data collection and analysis.
- **Objective 3:** Understand long-term trends in windstorm frequency, intensity, and location.
- **Objective 4:** Develop tools to improve windstorm hazard assessment.

GOAL B. IMPROVE THE UNDERSTANDING OF WINDSTORM IMPACTS ON COMMUNITIES.

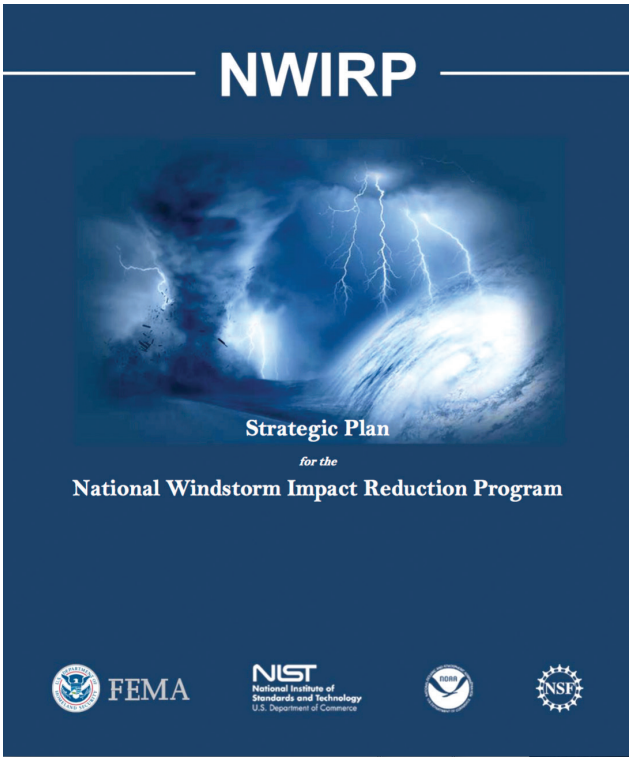
- **Objective 5:** Advance understanding of windstorm effects on the built environment.
- **Objective 6:** Develop computational tools for use in wind and flood modeling on buildings and infrastructure.
- **Objective 7:** Improve understanding of economic and social factors influencing windstorm risk reduction measures.
- **Objective 8:** Develop tools to improve post-storm impact data collection, analysis, and archiving.
- **Objective 9:** Develop advanced risk assessment and loss estimation tools.

GOAL C. IMPROVE THE WINDSTORM RESILIENCE OF COMMUNITIES NATIONWIDE.

- **Objective 10:** Develop tools to improve the performance of buildings and other structures in windstorms.
- **Objective 11:** Support the development of windstorm-resilient standards and building codes.
- **Objective 12:** Promote the implementation of windstorm-resilient measures.
- **Objective 13:** Improve windstorm forecast accuracy and warning time.
- **Objective 14:** Improve storm readiness, emergency communications, and response.

The plan includes eight areas of strategic priorities (SP):

- **SP-1:** Develop baseline estimates of loss of life and property due to windstorms.



Caption: NWIRP Strategic Plan.

- **SP-2:** Obtain measurements of surface winds and storm surge currents and waves in severe storms.
- **SP-3:** Develop publicly available databases of windstorm hazards and impacts.
- **SP-4:** Develop performance-based design for windstorm hazards.
- **SP-5:** Improve windstorm resistance of existing buildings and other structures.
- **SP-6:** Enhance outreach and partnerships to improve windstorm preparedness and hazard mitigation.
- **SP-7:** Enhance and promote effective storm sheltering strategies.
- **SP-8:** Develop the nation's human resource base in windstorm hazard mitigation fields.[2]

Development of the plan included stakeholder input and review and assessment of prior research needs and documents. Additionally, a stakeholders' workshop provided information to help shape the plan, and public comments and recommendations from the NWIRP's National Advisory Committee on Windstorm Impact Reduction were received. RCI was represented on the Advisory Committee by Senior Director of Technical Services Wanda Edwards. The Advisory Committee met throughout 2017, reviewing and developing recommendations of the draft strategic plan.

The participating federal agencies are the National Science Foundation (NSF), the Federal Emergency Management Agency (FEMA), and the National Oceanic and Atmospheric Administration (NOAA). NSF supports and conducts research to study the behavior of windstorms and their effects on buildings. FEMA works to support the development of risk assessment tools and effective mitigation techniques. NOAA supports atmospheric science research and the physical processes of hurricane intensity, tornadic vortex structure, and other weather phenomena, including waves and storm surge.

The report contains an in-depth discussion of each of the goals and objectives and how they can be achieved and measured. The eight SPs set the framework for new efforts. One of the goals is to reduce windstorm impact through better building codes. During the 2018 code development cycle, NIST proposed submitting a change to include a map of the United States depicting tornado-prone regions and disallowing the use of ballasted roofs on critical facilities in the most tornado-prone regions. FEMA also proposed several changes to reduce windstorm impacts. Next year, code proposals will be considered for the structural portion of the International Building Code, including proposals brought forward from the program.

The report has been finalized and can be reviewed at https://www.nist.gov/sites/default/files/documents/2018/09/24/nwirp_strategic_plan.pdf.

FOOTNOTES

1. Strategic Plan for the National Windstorm Impact Reduction Program, National Institute of Standards and Technology
2. Ibid.

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Wanda Edwrds is the senior director of technical services for RCI. Prior to joining RCI, she served as director of code development for the Institute for Business and Home Safety. Before that, she served as a deputy commissioner and chief engineer for the Engineering Division of the North Carolina Department of Insurance. She is a licensed professional engineer and serves on various committees within ASTM, ICC, and NIBS.

MRA Seeking Top Survivor Home of the Year

The Metal Roofing Alliance (MRA) is seeking stories from homeowners with metal roofs who survived Mother Nature's wrath for a chance to earn the title of MRA's Top Survivor Home of the Year and a $1,500 grand prize. To enter, homeowners simply need to submit their story in 200 words or less about the challenge their home withstood during 2018, along with a photo via the official entry page at www.metalroofing.com. For each qualified entry received, MRA also will donate $50 to the American Red Cross to help with disaster relief efforts, up to a total of $5,000. The search for MRA's Top Survivor Home of the Year ends on January 15, 2019.

"With climate extremes becoming increasingly common, taking steps to make homes more defensible and resilient is essential no matter where homeowners live," said Renee Ramey, MRA executive director. Building and renovating homes so that they are better able to withstand climate extremes is a hot topic in the industry, given the massive challenges homeowners have faced in recent years. That includes using more durable, longer-lasting, and stronger materials like metal roofs, in addition to construction methods that not only meet, but exceed codes for being able to better stand up against monster storms and help prevent damage from climate-related events, such as wildfires.

For official rules and details about the Metal Roofing Alliance's Top Survivor Home of the Year competition, visit www.metalroofing.com.

Not a winner...