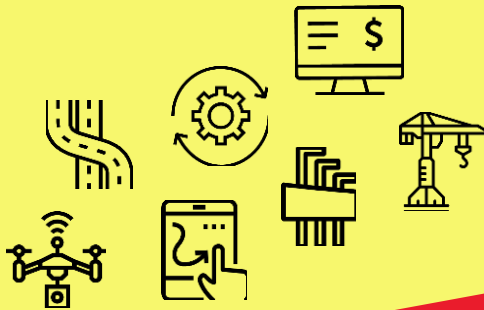


PREPARING FOR THE INDUSTRY OF TOMORROW



**Before the Storm: How to prepare for a
severe weather event and mitigate its impact**

*Mike Widdekind, AVP, Technical Director – Property
The Zurich Services Corporation*

*Jim Wills, VP Senior Director of Business Development
Gilbane Reconstruction Services*

The following CE credits are offered for this session:



1.0 AIC CPD Credit

AGC of America has been approved to offer Continuing Professional Development (CPD) credits for qualifying programs by the [American Institute of Constructors](#) (AIC).



1.0 AIA LU | HSW

The Associated General Contractors of America is a registered provider of AIA-approved continuing education under Provider Number G523. All registered AIA CES Providers must comply with the AIA Standards for Continuing Education Programs.

How to earn CE hours for this session

Participants must:

1. Check in with attendance scanner at the door or in the back of the room.
2. Attend at least 95% of the session.
3. Complete the session and post-program evaluation.

Additional instructions will be emailed to attendees requesting CE credits.

For those requesting AIA credits, please provide your AIA number so we can report your attendance. You may contact **Jo-Anne Torres**, Manager of Professional Development and Continuing Education, at jo-anne.torres@agc.org or (703) 837-5360 for questions.

Learning Objectives

By the end of this session, participants will be able to:

1. Identify severe weather plan elements.
2. Discuss how to establish severe weather mitigation objectives.
3. Review the skill(s) needed for severe weather preparedness planning.
4. Offer resources related to severe storm education, planning and mitigation recommendations.

Mike Widdekind

AVP, Technical Director – Property
The Zurich Services Corporation

Jim Wills

VP, Senior Director of Business
Development
Gilbane Reconstruction Services





Before the Storm:

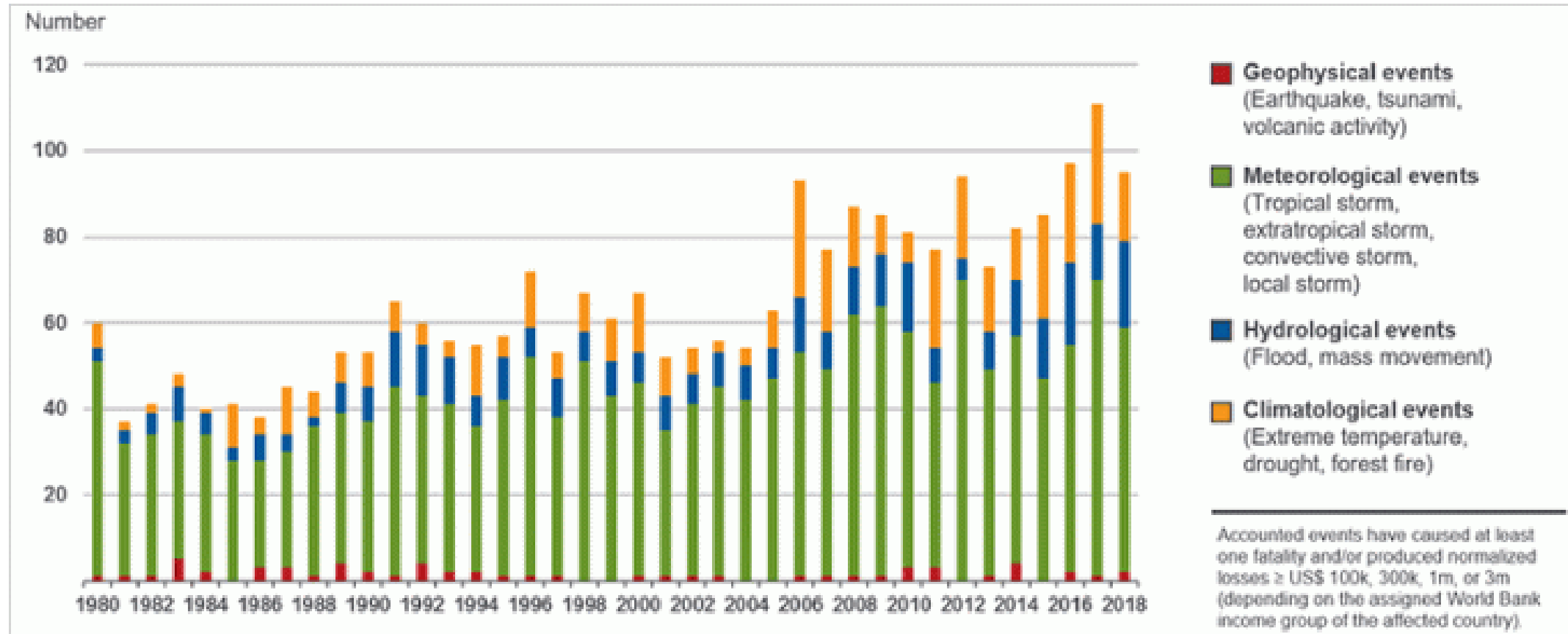
How to prepare for a severe weather event and mitigate its impact



Objectives

- Review the essentials of a severe weather plan
- Identify mitigation strategies
- Outline preparedness activities
- Develop effective response and recovery

World Natural Catastrophes -1980–2018



Why Plan?



It is not a
matter of if...

It's when?



Source: Jim Wills, Gilbane

Where?



Source: Mainichi Shimbun / Reuters

Where?



Source: Roland Schneider / Reuters



Mitigation strategies



Mitigation strategies

- All starts with your HVA
- Review what went wrong during similar disaster events
- Emergency Response Plan (ERP)
 - ✓ No Primary Power
 - ✓ No Phone
 - ✓ No Internet
 - ✓ No Water (may also include No Waste Water Treatment)

Logistics



No fuel...no
workers



Potable Water



Source: Jim Wills, Gilbane



Severe weather plan



Severe weather plan

- Severe thunderstorm and torrential rain events
- Wind and wind-driven rain events
- Weather forecast monitoring and planning of work
- Hurricane preparedness 36 hours and 24 hours out



Severe weather

- Monitor weather conditions using a weather app or the NWS
- Determine when to halt work based on forecast observations
 - Lightning within 20 miles
 - Lightning within 10 miles
 - Lightning within 6 miles
- Protect equipment over idle periods
- Be prepared for torrential rain events



Water infiltration plan



Water infiltration plan

Stormwater Pollution Prevention Plan (SWPP) Development

- Site assessment and planning
- Selecting erosion and sediment control BMP's
- Selecting good housekeeping BMP's
- Inspections, maintenance and recordkeeping

Sediment control practices

Before



Source: Michael Widdekind, The Zurich Services Corporation.



Source: Michael Widdekind, The Zurich Services Corporation

Sediment control practices

After



Source: Michael Widdekind, The Zurich Services Corporation.



Source: Michael Widdekind, The Zurich Services Corporation

Elevation of materials and equipment off the floor and ground

Skid ductwork off the floor



Source: Michael Widdekind, The Zurich Services Corporation.



Source: Michael Widdekind, The Zurich Services Corporation

Elevation of materials and equipment off the floor and ground

Elevate process piping and sprinkler off the floor



Source: Michael Widdekind, The Zurich Services Corporation.



Source: Michael Widdekind, The Zurich Services Corporation

Elevation of materials and equipment off the floor and ground

Elevate piping in laydown area and inside building



Source: Michael Widdekind, The Zurich Services Corporation.



Source: Michael Widdekind, The Zurich Services Corporation



Emergency power considerations

- Portable generators
- Fuel properly stored for the generators



Before hurricane season begins

- Review the hurricane plan. Make sure it is current.
- Verify there is a designated person on site at all times during hurricane season with the authority to implement the hurricane emergency action plan. This includes ordering process shutdowns and facility evacuations.
- If responsibilities are assigned to specific individuals, update the assignments if positions or personnel have changed.
- Make sure dedicated hurricane supplies and equipment are on hand. Order replacement materials as needed.
- Maintain a roofing company under contract to respond quickly should repairs be needed before or after a storm. Having a contract in place will allow faster access to critically needed repair services.



When a hurricane watch is issued – 36 hours before a hurricane

- Check building roofs. Make repairs to coverings and flashing as needed.
- Remove loose equipment and debris from roofs.
- Verify roof drains are clear of obstructions.
- Fill fuel tanks serving emergency generators and other vital services.
- Verify dewatering pumps are in-service and working.
- Verify outside drains and catch basins are clean.



When a hurricane watch is issued – 36 hours before a hurricane

- Remove debris from outdoor areas.
- Remove loose, outdoor, inactive equipment.
- Back-up computer data.
- Ship out as much stock as possible and stop deliveries.
- Verify all stock is skidded at least 4 inches above the floor.
- Review construction projects. Remove loose equipment and temporarily brace new construction.



When a hurricane warning is issued – 24 hours before a hurricane

- Protect or relocate vital business records.
- Remove all loose outdoor storage or equipment.
- Anchor portable buildings or trailers to the ground.
- Secure outdoor storage or equipment that cannot be moved.
- Begin installation of manual protection systems (e.g., shutters, plywood covers and flood gates).
- Raise critical equipment off floors.



When a hurricane warning is issued – 24 hours before a hurricane

- Move critical equipment from below grade areas.
- Cover critical stock and equipment with waterproof tarpaulins.
- Initiate an orderly shutdown of production equipment and systems that rely upon normal power.
- Turn off fuel gas services.
- Turn off non-essential electrical systems.
- Verify all fire protection systems are in service (e.g. water supplies, fire pumps, sprinklers, fire alarms and special extinguishing systems).



Preparedness measures

Laydown area and material securement

- All ditches backfilled
- All jobsite, signage removed
- Electrical junction boxes and panels protected
- Equipment secured
- Exterior fence intact and weighted
- Exterior scaffold planking removed and secured



Source: Michael Widdekind, The Zurich Services Corporation

Building interior

- All electrical shrink wrapped
- Debris netting removed and secured
- Elevator and stairwell lobbies free of debris
- Scaffold planks removed and secured
- Scaffolds secured



Source: Jim Wills, Gilbane

Building interior

- Loose formwork secured / weighted
- Perimeter guardrails secured to deck
- Pump in place for drainage
- Reshoring laced
- Roof debris removed
- Roof drains open and operational



Source: Michael Widdekind, The Zurich Services Corporation

Job trailers and office areas

- Computers elevated off floor
- Electronic equipment protected
- Gates secured
- Power disconnected to overall jobsite
- Power disconnected to temp. facilities
- Tie-downs in place
- Water shutoff
- Windows secured



Source: Jim Wills, Gilbane

Crane safety operations

Five basic causes of crane accidents:

- Operations
- Assembly/disassembly
- Rigging
- Maintenance
- Weather



Source: Jim Wills, Gilbane



Crane preparedness

- For crawler crane, lay boom down
- For tower crane, remove all banners, retract trolley and allow to weathervane
- *Follow manufacturer's guidelines*



Preparedness strategies review

- Flood protection
- Electronic data backup and access
- EOP
 - ✓ Drill often
 - ✓ Monitor storm conditions
 - ✓ Pre-storm building envelope assessment
 - ✓ Pre-storm grounds, including storm water drain and catch basin assessment
 - ✓ Monitor temporary sediment controls

Protect high valued equipment



Source: Michael Widdekind, The Zurich Services Corporation.



Source: Michael Widdekind, The Zurich Services Corporation

Flood protection



(photo courtesy of Presray Corporation)



(photo courtesy of Presray Corporation)

Hesco Barrier



Source: Jim Wills, Gilbane



Source: Jim Wills, Gilbane

Flood protection

Sand bags should be used as a last resort



Source: Michael Widdekind, The Zurich Services Corporation.



Source: Michael Widdekind, The Zurich Services Corporation

Flood protection

Portable pumps should be automatic not manual



Source: Michael Widdekind, The Zurich Services Corporation.



Source: Michael Widdekind, The Zurich Services Corporation

Wind concerns – rooftop equipment



Source: Michael Widdekind, The Zurich Services Corporation



Source: Michael Widdekind, The Zurich Services Corporation



Response and recovery



Getting employees back to work quickly

- Verify all job site employees are credentialed
- If some employees will remain on site during the storm:
 - ✓ Verify a secure location has been established
 - ✓ Anticipate 96 hours of supplies
 - ✓ Establish emergency communications



Getting employees back to work quickly

Encourage employees to prepare their families at home

- Give them time to prepare
- www.ready.gov
- <https://sbpusa.org>



Response and recovery strategies

- Vendor agreements and MOU's
- Employee / vendor credentialing and site security
- Accounting documentation
- Get help to manage the loss during continued operations
- Building envelope evaluation



Response and recovery strategies

Accounting documentation

- Setup separate accounting codes to track loss expenses
- Maintain project term of business income reports (financials)
- Up-to-date asset run of equipment
- Equipment vendor contact list



Response and recovery strategies

- Get help to manage the loss during continued operations
- Consider the following drop-in team to assist your facility during a loss
 - ✓ Accountant
 - ✓ Facility engineer
 - ✓ Risk manager
 - ✓ Safety officer
- Your facility staff already have a full time job running the day to day operations
- The drop-in team can assist with managing the loss



After the storm - what happens when water gets into the building

- Critical interior features can be damaged as wind-driven rain enters and spread downward by gravity.



After the storm - what happens when water gets into the building

What can wind driven rain damage?	
Interior finish	Drywall, woodwork, paint, wallpaper, flooring
Contents	Storage, machinery, medical diagnostic equipment, computers, files, furniture, laundry equipment, kitchen equipment
Wiring systems	Transformers, switchgear, telephone, fire alarm, network, door lock, cable TV
Utilities	Elevators, electrical, generators, elevators, boilers, chillers, fire pumps, domestic water pumps



After the storm

- Electric power interrupted
- Emergency generators stop due to
 - ✓ Wind driven rain carried over into air intakes
 - ✓ Consuming a limited fuel supply
- No HVAC
- No humidity control
- Mold
- Delayed building access
 - ✓ Civil authority, flooding, debris, downed power lines
- If elevators are lost, so is vertical access to the building for repairs
- Repairs cannot begin until
 - ✓ Elevators are restored to service
 - ✓ The building is dry



Summary

A hurricane and flood plan should be quick, simple and practiced.

- **Quick** means the plan must fit into a reasonable timeframe. A reasonable timeframe will begin no more than 48 hours before estimated hurricane landfall and needs to wrap up with sufficient time to allow for personnel evacuation. For example, if a location requires more than two days to install shutters on windows, it is probably best to leave the shutters in place during hurricane season.
- **Simple** means a series of checklists to facilitate implementation. The checklists should be backed up with more detailed documentation as needed; however, keep in mind that as a hurricane approaches or flooding is expected, no one will have time for the details.
- **Practiced** means you have actually conducted a full-scale implementation test of your plan. You know how many people are needed, you know what tools and supplies are needed, and you know how long each task will take. In short, you know the plan will work because you have tried it.



References

- Hurricane Preparation List, Safe-T-Net, Inc., 2017, www.safe-tlnet.net
- Developing Your Stormwater Pollution Prevention Plan, A Guide for Construction Sites, EPA, -833-R-06-004, https://www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf
- Severe Weather, Zurich Insurance, 2019, <https://www.zurichna.com/en/knowledge/topics/severe-weather>
- Water Damage Mitigation, Zurich Insurance, 2019, <https://www.zurichna.com/en/knowledge/topics/water-damage-mitigation>
- Plan Ahead for Disasters, <https://www.ready.gov/>
- SBP, <https://sbpusa.org/>



Questions?



The information in this presentation was compiled for informational purposes only, no representation or warranty, express or implied, is made by Zurich North America as to their accuracy or completeness. Certain statements in this presentation are forward-looking statements, including, but not limited to, statements that are predictions of or indicate future events, trends, plans, developments or objectives. Undue reliance should not be placed on such statements because, by their nature, they are subject to known and unknown risks and uncertainties and can be affected by other factors that could cause actual results, developments and plans and objectives to differ materially from those expressed or implied in the forward looking statements. Zurich assumes no liability concerning the information set forth in the presentation. We undertake no obligation to publicly update or revise any of this information, whether to reflect new information, future developments, events or circumstances or otherwise.

Insurance is underwritten by Zurich Insurance Company Ltd and other insurance company subsidiaries within the Zurich Insurance Group including, in the U.S., Zurich American Insurance Company and its underwriting subsidiaries. Insurance product obligations are the sole responsibility of each issuing insurance company. For example, only the assets of Zurich American Insurance Company (and no other assets of the Zurich Insurance Group Ltd) are available to meet its obligations for the performance of its products. This information is consolidated Zurich Insurance Group Ltd financial information as of December 31, 2016 and is not audited. For more complete financial information, audited annual statements of the Group and information on the ratings of the underwriting companies of Zurich in North America, access www.zurich.com. No assurances can be given, and we make no representations, that such information has, or has not, changed since December 31, 2016. Risk engineering services are provided by The Zurich Services Corporation.

© 2020 Zurich American Insurance Company. All rights reserved.