Resilience by Design: What Businesses Need to Know about Weather and Climate Risks

Lou Gritzo, Ph.D., Vice President, Research, FM Global
96% companies have operations exposed to natural disasters.

Only 20% are “very concerned” about the impact to their bottom line.

~ Ten Years Ago: Business Need for Resilience
Flirting with Disaster

“Flirting with Disaster: Why Some Companies Risk it All”, www.fmglobal.com/disaster
62% of companies were not completely prepared.

7 out of 10 will make changes.

Source: FM Global Hurricane Risk Survey, Jan. 2018
75% U.S.-based workers feel their employer is not well-prepared for a natural disaster.

Only 29% are “confident” about their employer can bounce back quickly from a natural disaster.

“Business Risk Pulse Check”, www.fmglobal.com/pulse
Resilience in a Changing Climate?
World Natural Catastrophe Events, 1980-2017

Source: © 2018 Munich Re, Geo Risks Research, NatCatSERVICE. As of February 2019.
Natural Hazards: How are they changing?
Yearly Global Surface Temp Anomalies 1880-2018

1°C = 7% more water
Increased rainfall – 20 year trends
Observed Change in Very Heavy Precipitation
Sea level rise
Sea level rise

The map above illustrates relative sea level trends, with arrows representing the direction and magnitude of change. Click on an arrow to access additional information about that station.
Sea Level Rise Scenarios

“Global and Regional Sea Level Rise Scenarios for the United States”, NOAA Tech Rep. NOS CO-OPS 083, January 30, 2017
Loss Prevention - Flood
Know your Flood Exposure
Flood Modeling and Mapping Approach

- Land Use Data
- Network
- Catchments/Drainage Network
- Landscape/Soil/Rainfall/Streamflow Data
- Hydrologic Modeling
- Hydraulic Modeling
- Flood Elevation
- Flood Discharge
- Time
- Max Extent

Flood Mapping

1% & 0.2% Flood Maps
Areas with no/old Maps: South Africa
Flood imminent? You have tested options.
Flood Resilience

1. Block
Flood Resilience

2. Raise
3. Seal
Other Natural Hazards
Mitigation ?
Mitigation

Adaptation (i.e., Loss Prevention)
Sustainability (i.e. Climate Change Mitigation) AND Loss Prevention
Unintended Consequences: ACM/MCM Assy

Atlantic City (US)  2007
Dubai (Torch Building)  2015 AND 2017
Grenfell (UK) 2017
Korea 2010
1. STANDARDS and CERTIFIED Products to Achieve Resilience Available for Your Use

2. Look Hard at FLOOD EXPOSURE

3. Work with Clients to Achieve RESILIENCE for the Long Term ECONOMIC and CLIMATE Benefit