

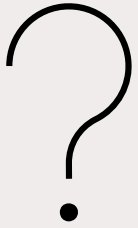


Resilient Design and the Evolving Standard of Care

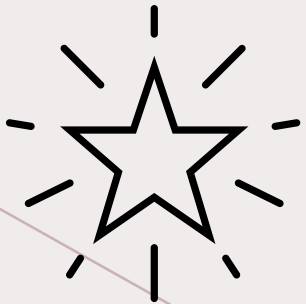
SPEAKERS:
BRETT STEWART, J.D.
AXA XL



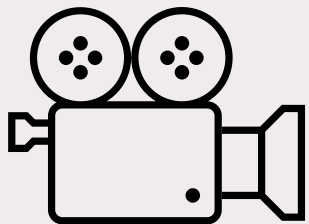
Cultivate a positive learning environment



Please use the Q&A function to ask questions for today's presenter



This session qualifies for 1.5 AIA LU HSW – AIA CA will submit for you

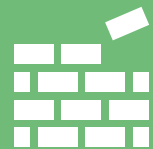


A recording of this presentation will be made available on our website soon

LEARNING OBJECTIVES



Learn how the standard of care for design professionals is constantly evolving and will change more rapidly as extreme weather and climate-related events pose a greater risk to human life and infrastructure



Learn how to better communicate and document resilient design alternatives that serve to better safeguard the public and allow society to recover quicker from a natural catastrophe



Identify, analyze, and determine the need for alternative design approaches to account for more dynamic weather and climate-related events that pose an increasing risk to the health and safety of the public by identifying likely hazards and project site-specific exposures



Learn how to better identify opportunities to assist clients in adopting more progressive resilient design approaches by focusing on the long-term impacts on human health as well as project life-cycle costs

AIA
Continuing
Education
Provider

Attendees will earn 1.5 AIA LU HSW for attending this presentation live. AIA CA will submit you for AIA credit within 10 days of the presentation.

PRESENTER

Brett Stewart, J.D.

Risk Manager / Design Professional
AXA XL, a division of AXA





Resilient Design and the Evolving Standard of Care

Brett Stewart
AXA XL Design Professional

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Learning Objectives

- ▶ At the conclusion of this program attendees will be able to identify, analyze, and determine the need for alternative design approaches to account for more dynamic weather and climate-related events that pose an increasing risk to the health and safety of the public by identifying likely hazards and project site-specific exposures.
- ▶ Attendees will learn how the standard of care for design professionals is constantly evolving and will change more rapidly as extreme weather and climate-related events pose a greater risk to human life and infrastructure. By understanding how the standard of care evolves, design professionals will be encouraged to develop more innovative resilient designs that better protect people and property.
- ▶ After completing this program, attendees will learn how to better identify opportunities to assist clients in adopting more progressive resilient design approaches by focusing on the long-term impacts on human health as well as project life-cycle costs.
- ▶ During this workshop attendees will learn how to better communicate and document resilient design alternatives that serve to better safeguard the public and allow society to recover quicker from a natural catastrophe.

AGENDA

Resilient Design and the Evolving Standard of Care

- 1 What is resilient design and why do we need it?
- 2 The standard of care
- 3 Identifying the problem
- 4 Solutions
- 5 Questions / Comments



1 What is resilient design and why do we need it?

The intentional design of buildings, landscapes, communities, and regions in order to respond to natural and manmade disasters and disturbances

Sea level rise

Storm surge

Extreme heat, cold, rain, wind

Fire

Flood

Landslide

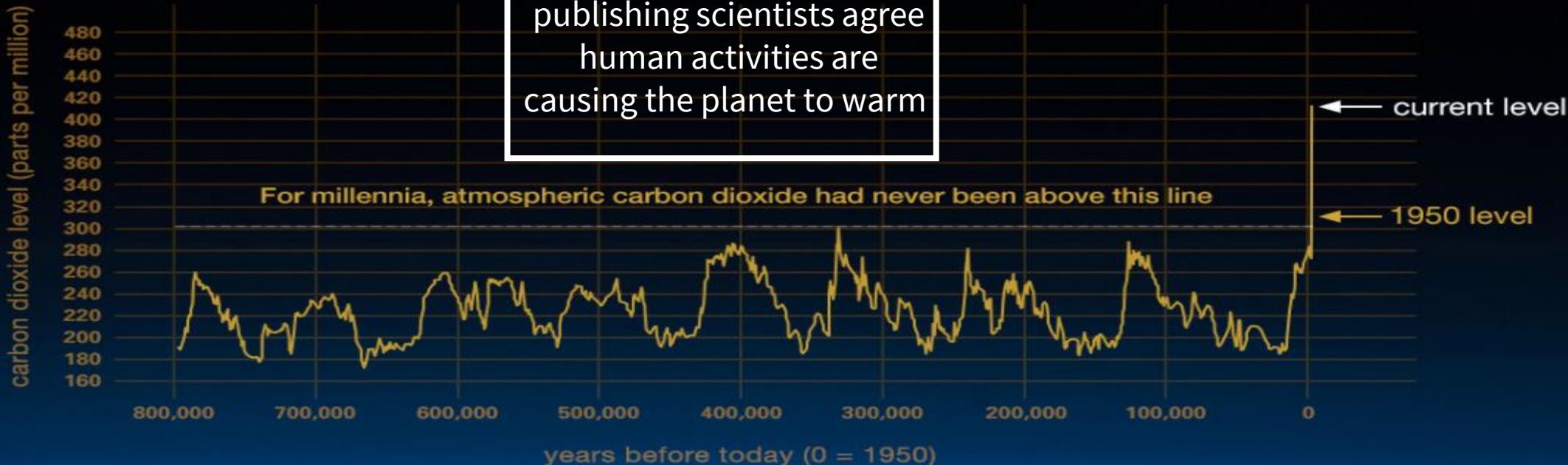
Earthquake

Pandemic and disease

Civil unrest, war, terrorism

NASA climate evidence and IPCC 6th Assessment Report

97-98% of actively publishing scientists agree human activities are causing the planet to warm

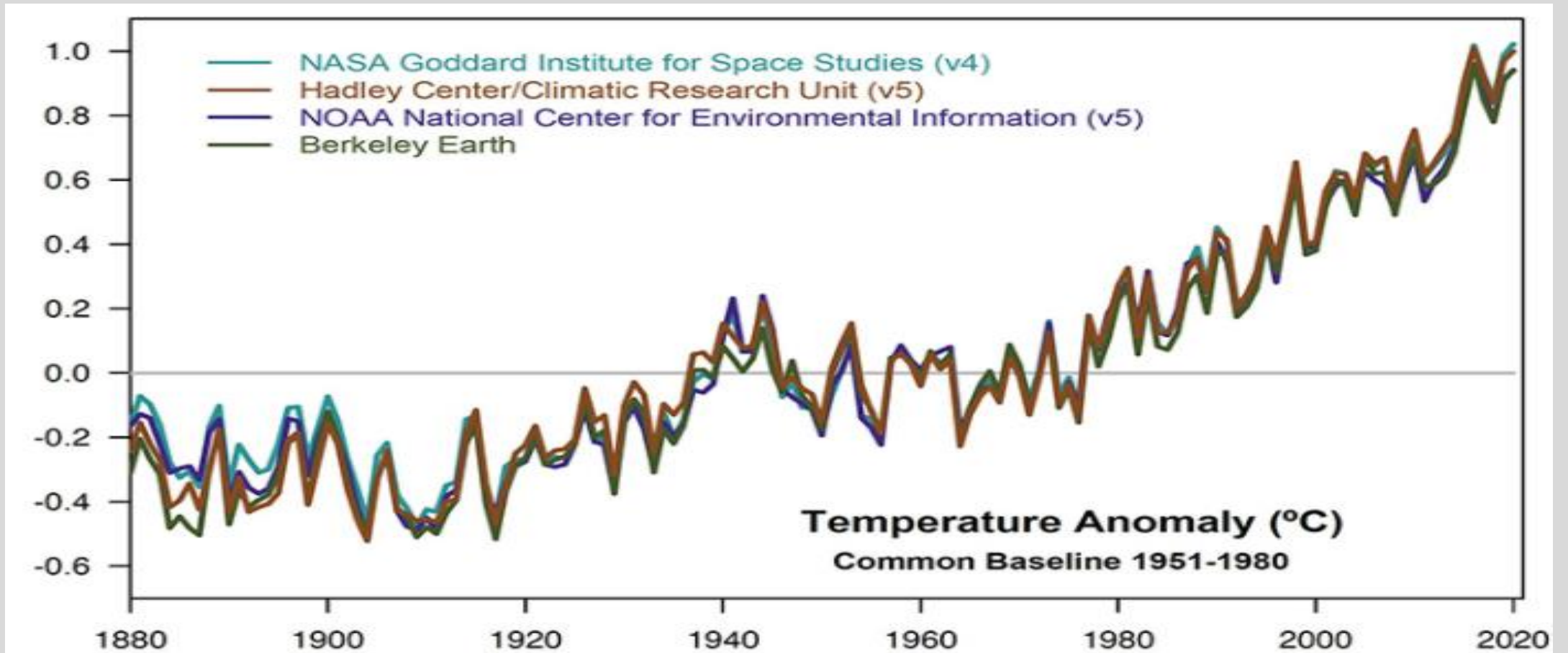


climate.nasa.gov

This graph, based on the comparison of atmospheric samples contained in ice cores and more recent direct measurements, provides evidence that atmospheric CO₂ has increased since the Industrial Revolution. (Credit: Luthi, D., et al.. 2008; Etheridge, D.M., et al. 2010; Vostok ice core data/J.R. Petit et al.; NOAA Mauna Loa CO₂ record.) [Find out more about ice cores](#) (external site).



NASA's Goddard Institute for Space Studies



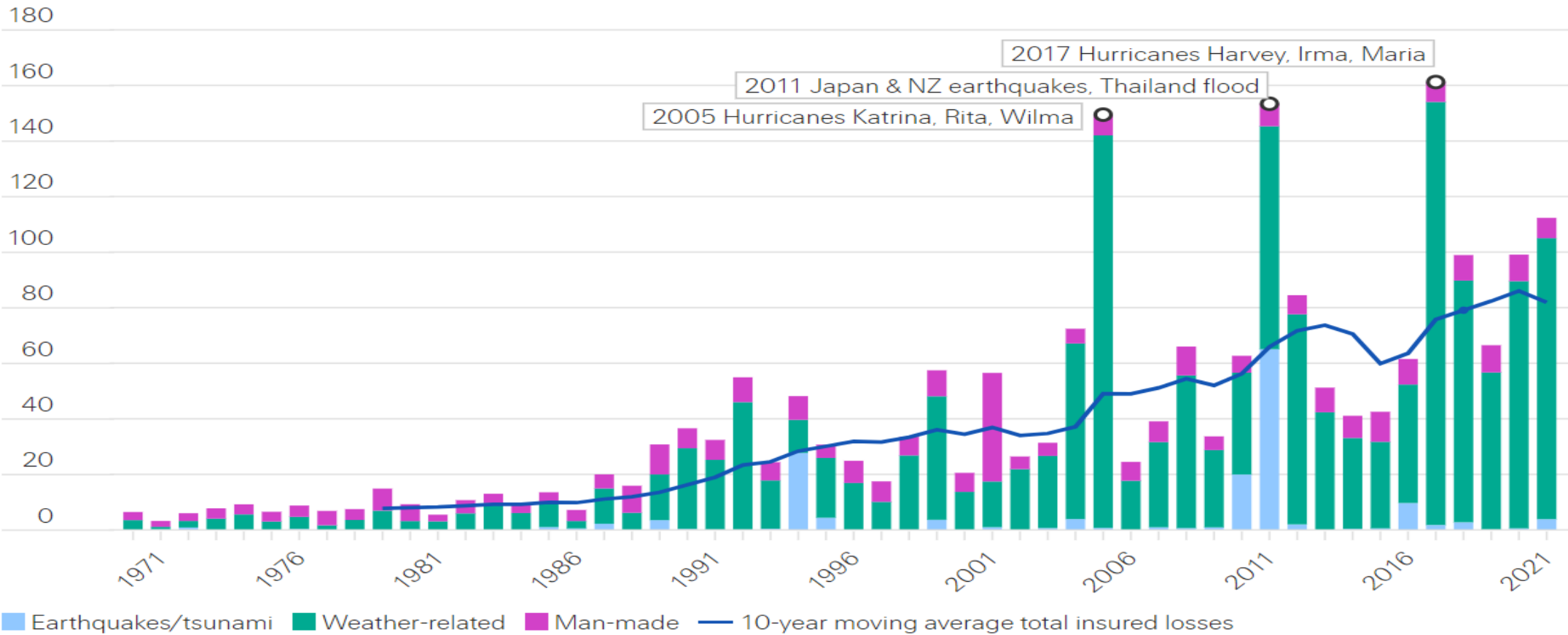
Temperature data showing rapid warming in the past few decades, the latest data going up to 2020. According to NASA data, 2016 and 2020 are tied for the warmest year since 1880, continuing a long-term trend of rising global temperatures. The 10 warmest years in the 141-year record have occurred since 2005, with the seven most recent years being the warmest. Credit: NASA's Goddard Institute for Space Studies.

50-year trend of insured losses

Figure 1: Insured losses since 1970

USD billion (in 2021 prices)

Rollover/touch chart for details



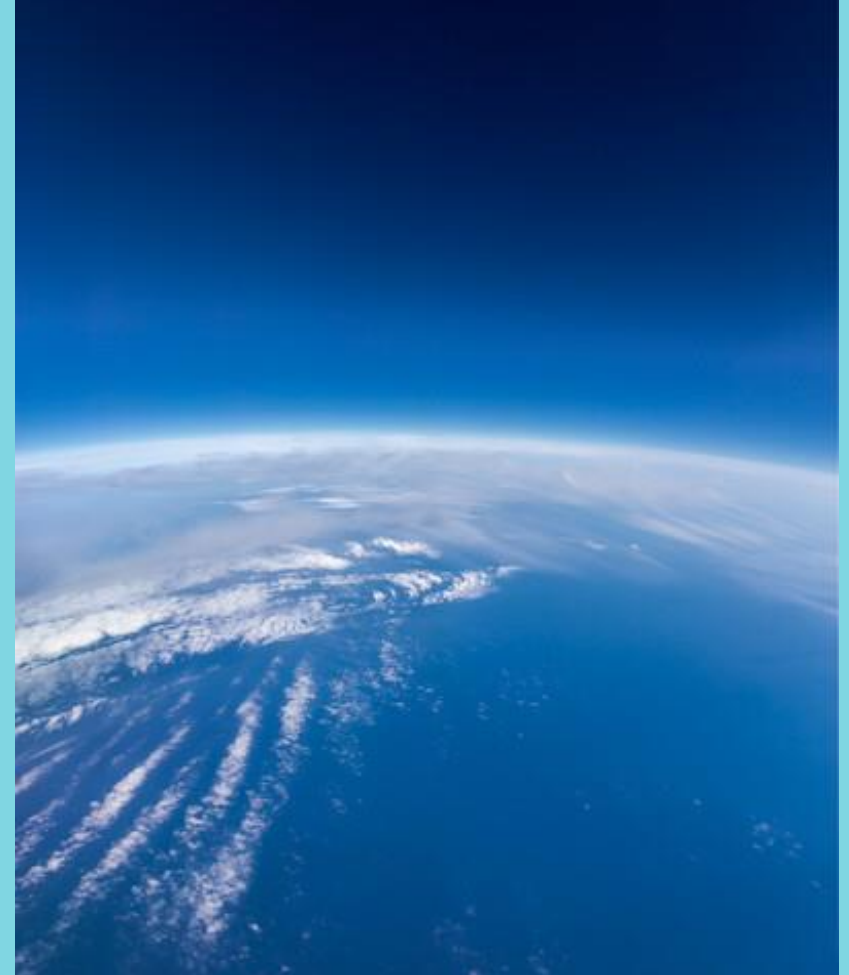
Source: Swiss Re Institute



The perfect storm for claims against design professionals

- Increasing catastrophe losses (insured and uninsured)
- More assets exposed
- Failing infrastructure
- Property insurance carriers avoiding certain risks
- Possible overhaul of federal programs like NFIP
- Increased difficulty predicting more dynamic events
- Changing climate patterns
- Societal views that someone must pay

**Design prospectively
Communicate
Document**





2

The standard of care

How should your professional services be judged?

Common law insurable standard of care

In providing services under this Agreement, the Consultant shall perform in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances at the same time and in the same or similar locality.

Problematic elevated standard of care

Best
Best in class
Highest standards
Cutting edge
Nationally recognized design
Award winning
Legacy project
Free from error or defect
First class design
Guaranteed project performance level
Putting the client's interest above all else

Sample jury instructions

An architect is negligent if [he/she] **fails to use the skill and care that a reasonably careful architect would have used in similar circumstances.** This level of skill, knowledge, and care is sometimes referred to as “the standard of care.”

California Civil Jury Instruction 600

An architect is not necessarily negligent just because [his/her] efforts are unsuccessful or [he/she] makes an error that was reasonable under the circumstances. **An architect is negligent only if [he/she] was not as skillful, knowledgeable, or careful as another reasonable architect would have been in similar circumstances.**

California Civil Jury Instruction 600

Reasonable person standard

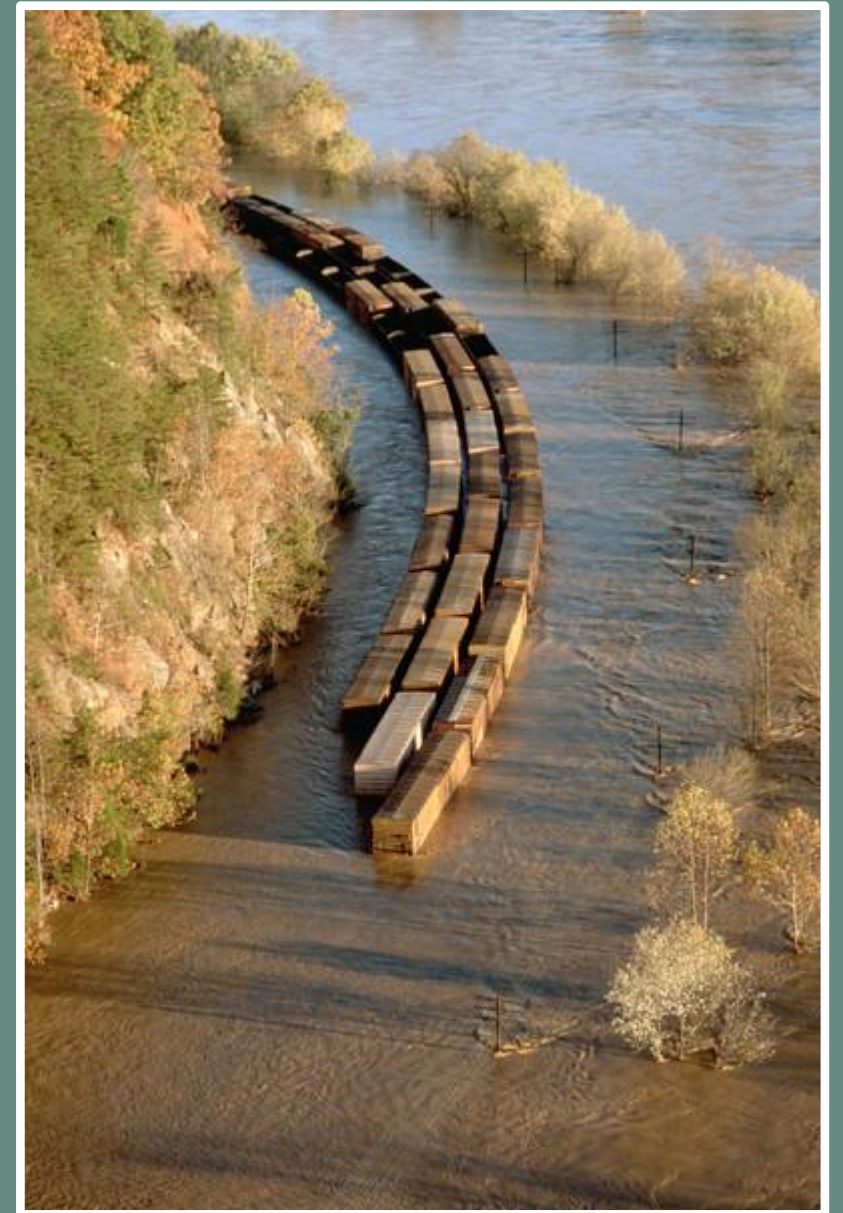


The standard of care is constantly evolving

- Prevailing scientific understanding, data, media reports and experience of you and your peers
- Rapidly evolving and updated codes, regulations, laws, and licensing requirements
- Code compliance may not satisfy the standard of care
- Program requirements might not reflect the standard of care and might not be correct
- Industry group standards
 - EJCDC 500 2014 Ex. A - review design criteria with the owner and address the owner's requests for additional studies and services to “enhance resilience of the project.”
 - AIA Industry Statement on Resilience
 - AIA Resilience Project Process Guide
 - Resilience Building Coalition
 - Resilience Design Toolkit
- Resilient design and sustainability may not be the same thing

What about your ethical obligations? Health, safety and welfare

- AIA Code of Ethics
 - Ethical Standard 6.5: “Members should incorporate adaptation strategies with their clients to anticipate extreme weather events and minimize adverse effects on the environment, economy and public health.”
 - Rule 6.501: “Members shall consider with their clients the environmental effects of their project decisions.”
- ASCE: “c. mitigate adverse societal, environmental and economic effects...”



Five ways to consider resilient design

Five ways to consider resilient design

1. You thought about it and your design worked
2. You thought about it, but the client doesn't want to pay for it
3. You thought about it, but your design did not work
4. You didn't think about it
5. You thought about it, but didn't think it mattered, so you did nothing



How is the standard of care tested?


- Factually intensive and expert driven analysis
- Focus on when and what you did, why you did it, what you relied on and why it was reasonable based on information currently available
 - Review of all relevant documents including reports, studies, resources and calculations
 - Answers to written questions
 - Deposition testimony
- The **burden of proof is a preponderance of the evidence (>50%)**, not beyond a reasonable doubt
- Three questions to ask yourself:
 1. Are climate trends changing?
 2. Are societal beliefs about climate trends changing?
 3. Is the science evolving?



3 Identifying the problem

Natural hazard risk

Lake Charles, LA: Hurricane Laura (Cat 4) Aug. 27, 2020, and Hurricane Delta (Cat 2) Oct. 7, 2020

Natural Hazard Risk	Hazard Frequency and severity What are the chances of a hurricane hitting the same city twice in one year?	Exposure Physical properties of structure or site My design called for the back up power source for the hospital to be on the first floor which is not elevated	Vulnerability Destruction rates, function of hazard and exposure What is the cost in terms of property damage and business interruption when the hospital is not functioning	
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Failure to properly identify the hazard

Trend of increasing severity of climate events

- Excessive / intense precipitation
- Riverine flood
- Coastal flood
- Noncyclonic wind gusts
- Cyclonic wind gusts
- Water stress
- Drought
- Landslide
- Soil movement / subsidence
- Extreme heat
- Wildland fire risk
- Extreme cold



Failure to properly identify the exposure and design for it

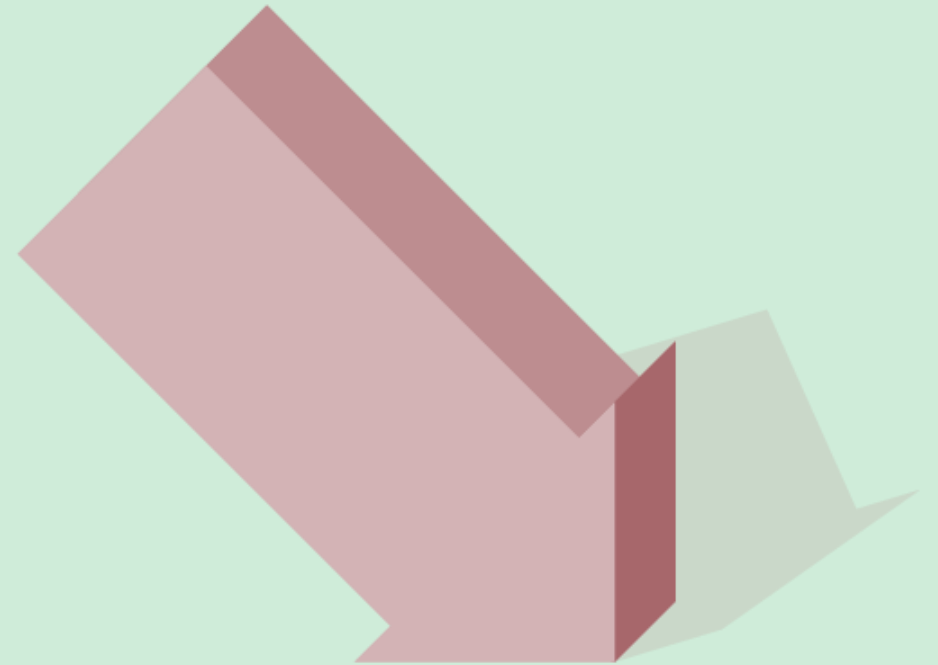
Vulnerabilities to the built and natural environment

- Building, roadway, bridge or other infrastructure subject to flooding or site erosion
 - Site elevation, drainage and location of key equipment
- Building envelope failures
- Building and infrastructure resilience to high wind events
- Short and long-term ability to provide water to communities and farms
- Impact of groundwater overdraft on buildings and infrastructure

- Impact of subsidence and soil activation caused by irregular precipitation cycles
- Changing assumptions about heating and cooling capacity of indoor environments
- Mechanical demands to account for poor outdoor air quality
- Missed energy tax credits due to higher heating and cooling loads
- Increased wildland fire risk and site design
- Structural stress caused by excessive snow loads
- Rolling blackouts and inability to procure energy to power buildings and infrastructure when needed most

Factors that can make a claim worse for design professionals

- Failing infrastructure and deferred maintenance
- Governmental immunity
- Potential increase in uninsured / underinsured property losses
- Insurers exiting markets
- Changes in governmental safety nets like NFIP
- Failure of climate change class action lawsuits
- Attribution science
- Social inflation
- Litigation funding
- Juries and judges may fail to appreciate complex issues of causation and damages





4 Solutions

Opportunities to be part of the solution

Redesign the built and natural environment to help society become more resilient to change

- Offer to design beyond code compliance to minimize interruption and maximize speed of recovery following a catastrophe
 - Design prospectively using historic baselines (e.g., FEMA flood maps) as a starting point
 - Provide design alternatives and demonstrate the resilience benefits of added construction costs
 - Focus on life-cycle
- Hire the experts (internal staff or subconsultants)
- AIA C204 – Sustainability Consultant (AIA E204 Sustainable Projects Exhibit)
- Recommend that the client hire the appropriate experts
- Get involved in policy discussions regarding sustainability; e.g., decarbonization and resilience

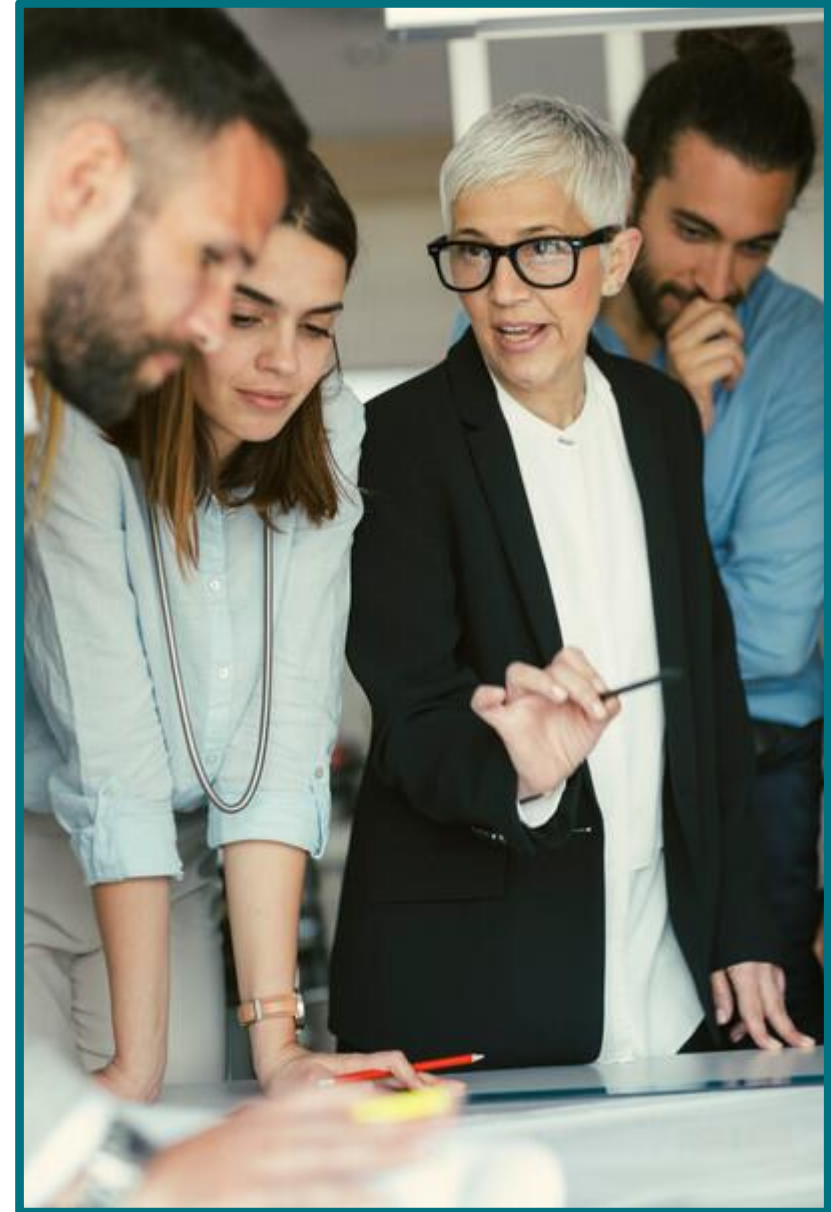
Other factors driving design change

- Federal infrastructure funding
- State and municipal projects
- More access to localized open-source hazard modeling
- Shareholder interest (ESG)
- Lender requirements
- Shifting societal norms



Communicate and document

- Alternative design proposals and recommendations
 - RFP, proposal and discussions re: program requirements
- AIA Hazard and Climate Risk: a user's guide and form for acknowledging risk
- Deliver the facts re: budget, schedule and quality
- Rephrase the conversation
 - 1,000-year event versus 0.001% probability
- Document **when and what you did, why you did it, what you relied on and why it was reasonable based on information currently available**
- Issue spot – know what you don't know
- Protect yourself contractually



Protect yourself contractually

- Scope of services
- Schedule
- Fee and payment terms
- Certifications, guarantees and warranties
- Standard of care
- Incorporate applicable code references
- Redesign obligations
- Indemnities
- Prevailing party fees
- Resilient design and hold harmless
- Innovative design and technologies



Resilient design

The Client agrees that **estimating and projecting future weather, climate, rainfall, flood, tidal, ocean and on-shore conditions and their impacts** upon existing or contemplated developments, infrastructure or resources **is difficult, complex and based on variable assumptions that are impacted by factors beyond the Consultant's ability to predict or control.**

Accordingly, any estimates, forecasts, studies, reviews, conclusions, recommendations or assessments provided as part of the Consultant's Services **are presented solely on the basis of data currently available and may no longer be valid if that data materially changes.**

The Client further agrees and understands that weather, climate, rainfall, flood, tidal, ocean and on-shore events are **based on probability, and extreme events can and will occur** and may cause damage regardless of mitigation measures.

Resilient design hold harmless

The Consultant and the Client have discussed the risks and benefits of resilient design alternatives. **If the Client decides to proceed against advice of the Consultant that is intended to reduce the risk of loss or damage in the event of highly likely or certain natural or manmade events**, the Client hereby agrees to release, hold harmless, defend and indemnify the Consultant from any and all claims, damages, losses or costs associated with or arising out of the Client's decision to proceed against the Consultant's advice.

Innovative design and technologies

The Client understands and agrees that **state-of-the-art or innovative products, technologies or methods** may be used on the Project and **that these lack a proven history of successful application and performance**. The Client acknowledges that these technologies are being incorporated into the Project to accomplish recognized objectives and, due to their unproven and innovative nature, **there is a significant possibility that those objectives may not be realized and may result in undesirable consequences**. The Consultant will conduct a reasonable level of investigation and analysis, and this is the limitation of the Consultant's obligation for the performance of these technologies. The Client has weighed the relative risks and rewards and accepts the risk of incorporating the innovation(s) into the project.

From time to time, the Consultant may request the Client to consider and decide upon the use of experimental products. The Consultant will use reasonable efforts to provide the Client with information upon which to make such decisions, and the Consultant may request that the Client sign a "Client Waiver and Informed Consent to Use Experimental Product." Attached to this Agreement as Exhibit [_____] is a sample of this waiver and informed consent form.

What is AXA XL doing?

The AXA 2022 Climate Action Report

4 C° is not insurable
On track for 3.2 C°

- The Paris Agreement is our roadmap: Hold warming to “well below 2°C compared to pre-industrial levels and pursue best efforts to limit warming to 1.5° C by 2100.”
- Net-Zero Asset Owner Alliance – net-zero GHG emissions by 2050
- €26bn green investments by 2023
- Divest of all coal assets by 2040
- Achieve carbon neutrality for own operations by 2025
- Expand parametric insurance
- Narrow the insurance gap
- Continue research and development
- AXA Climate



Questions?

Thank you!



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