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Enhancing Resilience in the Built Environment: A Critical Response to Climate Change Challenges

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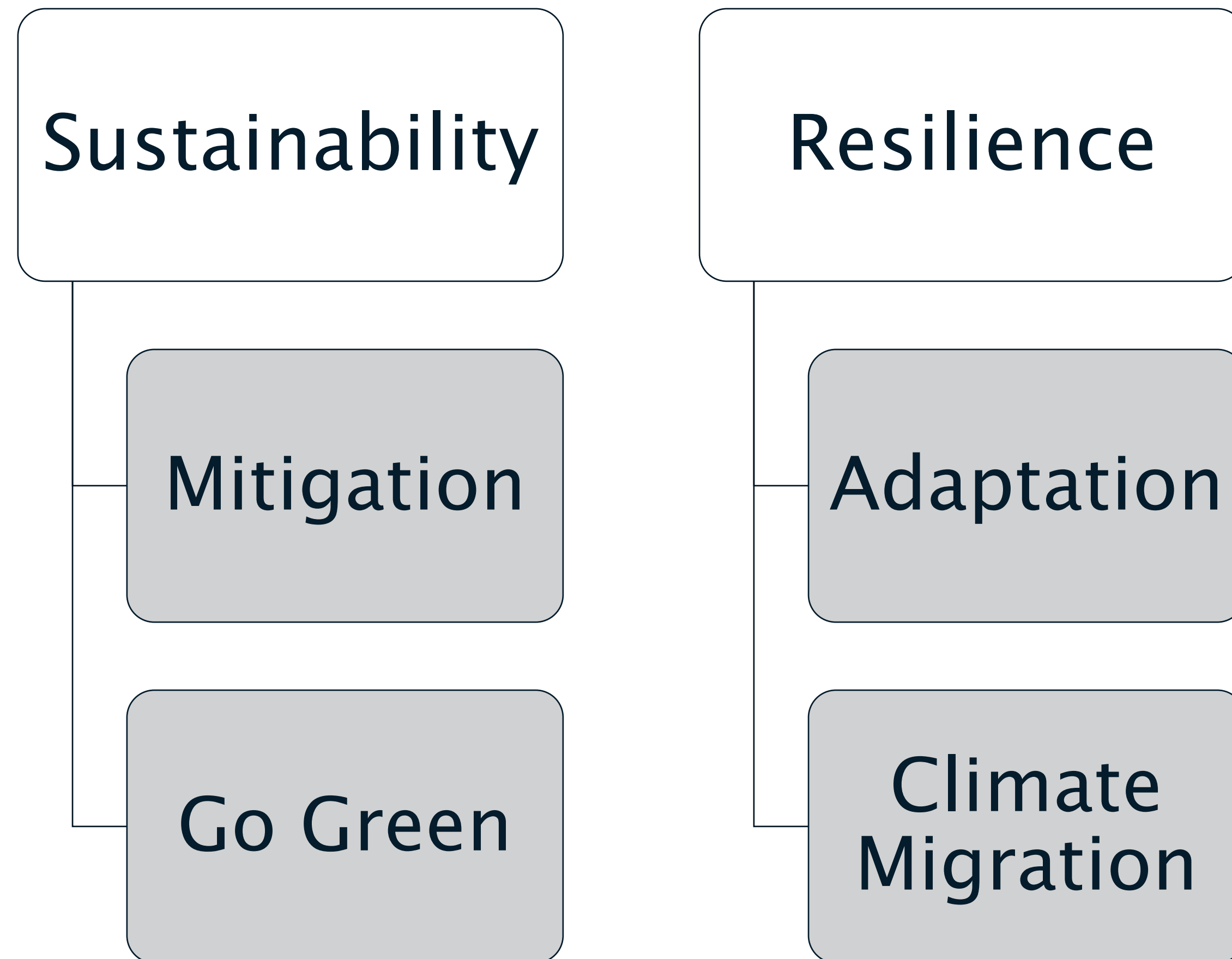
AGENDA

1. Climate Action 101
2. Legal Duties in Construction
3. Construction Litigation
4. Dangers of Extreme Heat
5. Reducing the Risks of Climate-Related Litigation

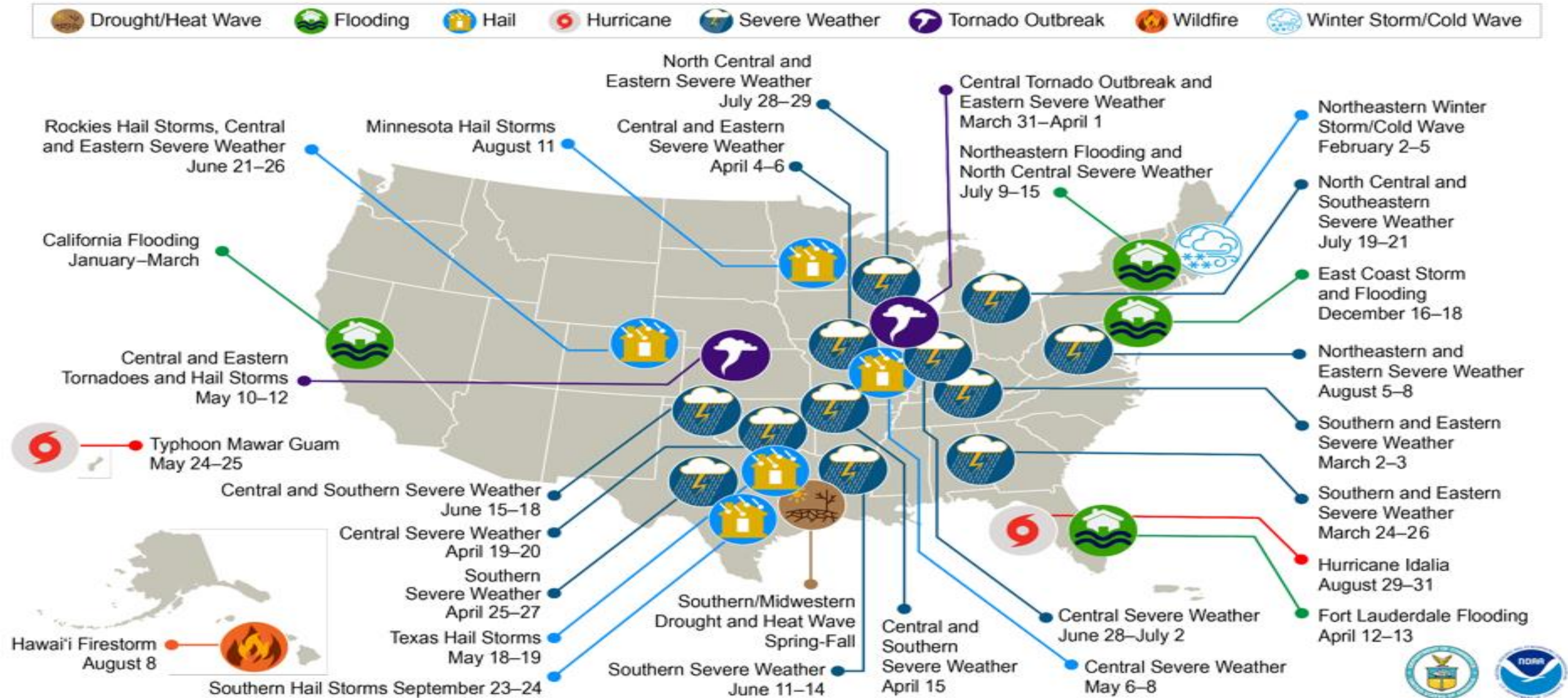
Climate Action 101



Sustainability vs. Resiliency



U.S. 2023 Billion-Dollar Weather and Climate Disasters



This map denotes the approximate location for each of the 28 separate billion-dollar weather and climate disasters that impacted the United States in 2023.

Construction Isn't Going Anywhere

Over the next 35 years,

2.5 trillion ft²

of buildings will be constructed or renovated in cities worldwide.

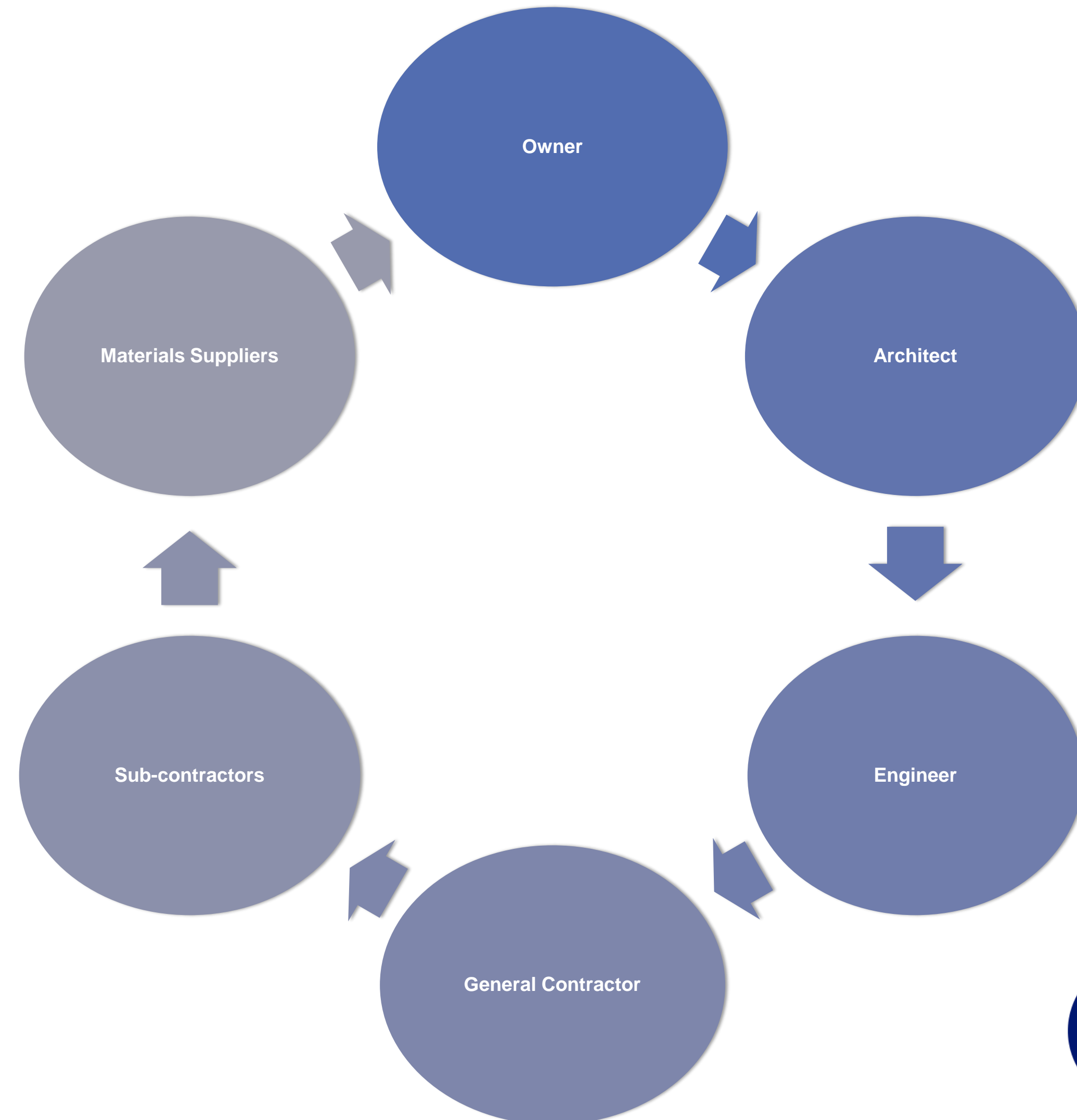
Source: Architecture 2030 /
UN Environment, Global Status
Report 2017



Another
NYC
every 35
days

Legal Duties in Construction

CONSTRUCTION PARTIES & THEIR DUTIES



OWNERS

Responsible to:

- Tenants
- Residents
- Invitees
- Third parties who may be harmed



ENGINEERS & ARCHITECTS

- Professional Standard of Care
 - Provide services to their clients with the degree of skill and care that would be exercised by other professionals in their industry, taking into consideration the contemporary state of the art and the region in which the professional practices
- Architects are responsible for protecting the health, safety, and welfare (HSW) of the public—typically the people in and around the project



GENERAL CONTRACTORS & SUBCONTRACTORS

- Responsible for defects in (some) design & installation
- Responsible for delays
- *Spearin* & Force Majeure doctrine offers some protection
- OSHA obligations



MATERIALS SUPPLIERS

- Design and manufacture materials that meet specifications and industry standards
- Often looked to for installation guidance/acceptance
- Responsible for selecting appropriate ancillary materials



Construction Litigation



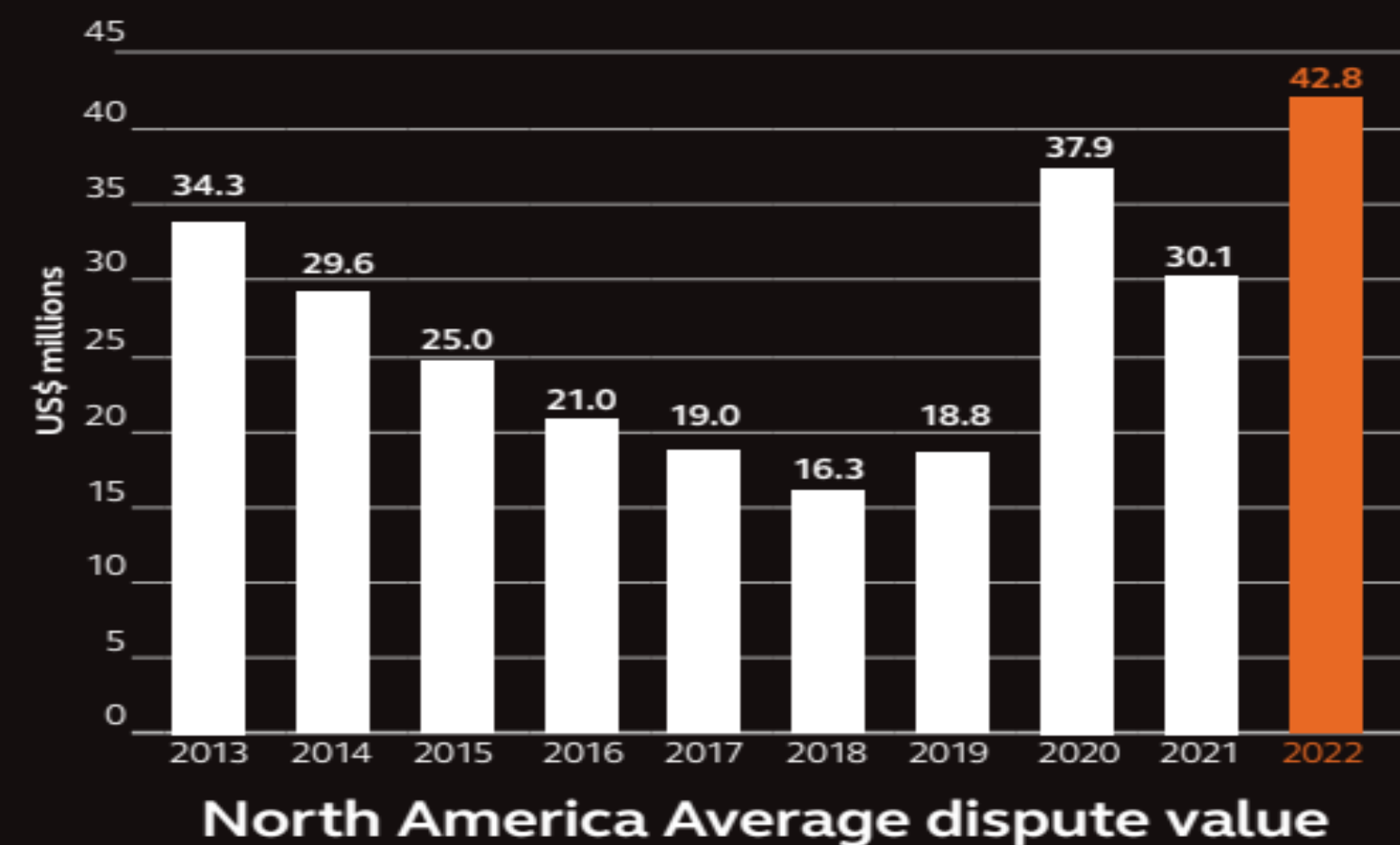
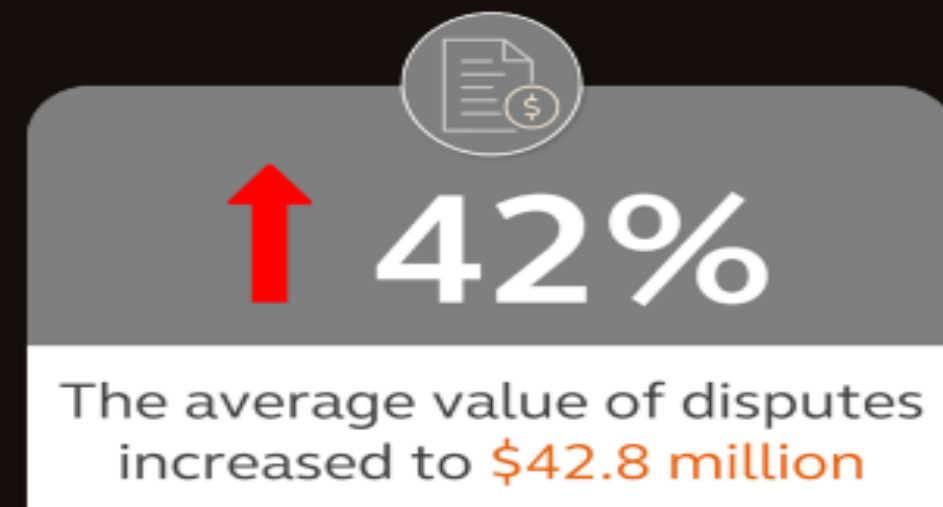
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CONSTRUCTION LITIGATION = LOTS OF TIME + MONEY

For North America, the 2022 results show that the **transportation—highways, bridges, mass transit, airports, ports** — sector saw the most disputes, the same as 2021.

The highest value dispute reported by the respondents was

\$2 billion (US)

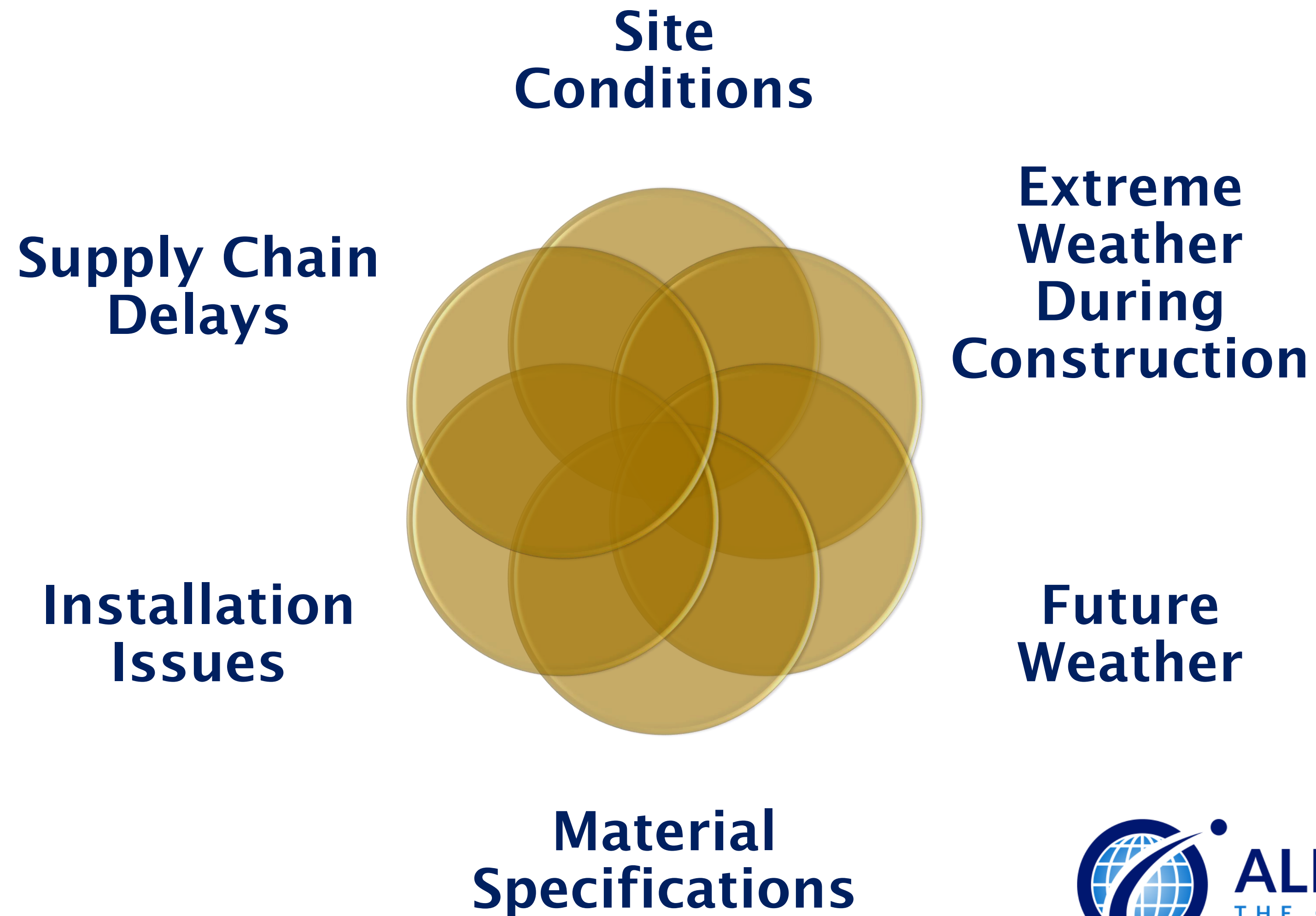


*Arcadis
13th
Annual
Construction
Disputes
Report
North
America |
2023



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PROBLEMS + CONFUSION = LITIGATION



WHY IS CONSTRUCTION LITIGATION SO COSTLY

Multiple parties

- Owners
- Developers
- Architects
- Engineers
- General contractors and subcontractors
- Materials suppliers

Litigation Expenses

- Extensive e-discovery
- Depositions of multiple parties
- Expert witness investigations, reports, and depositions
- Disputes over insurance coverage

RISKS AND HOW TO AVOID THEM

Overall dispute cause

2022 Rank		2021 Rank
1	Errors and/or omissions in the contract document	2
2	Owner/Contractor/Subcontractor failing to understand and/or comply with its contractual obligations	5
3	Poorly drafted or incomplete and unsubstantiated claims	1

Most effective claims avoidance techniques

2022 Rank		2021 Rank
1	Risk management	2
2	Contract and specification reviews	1
3	Constructability reviews	3

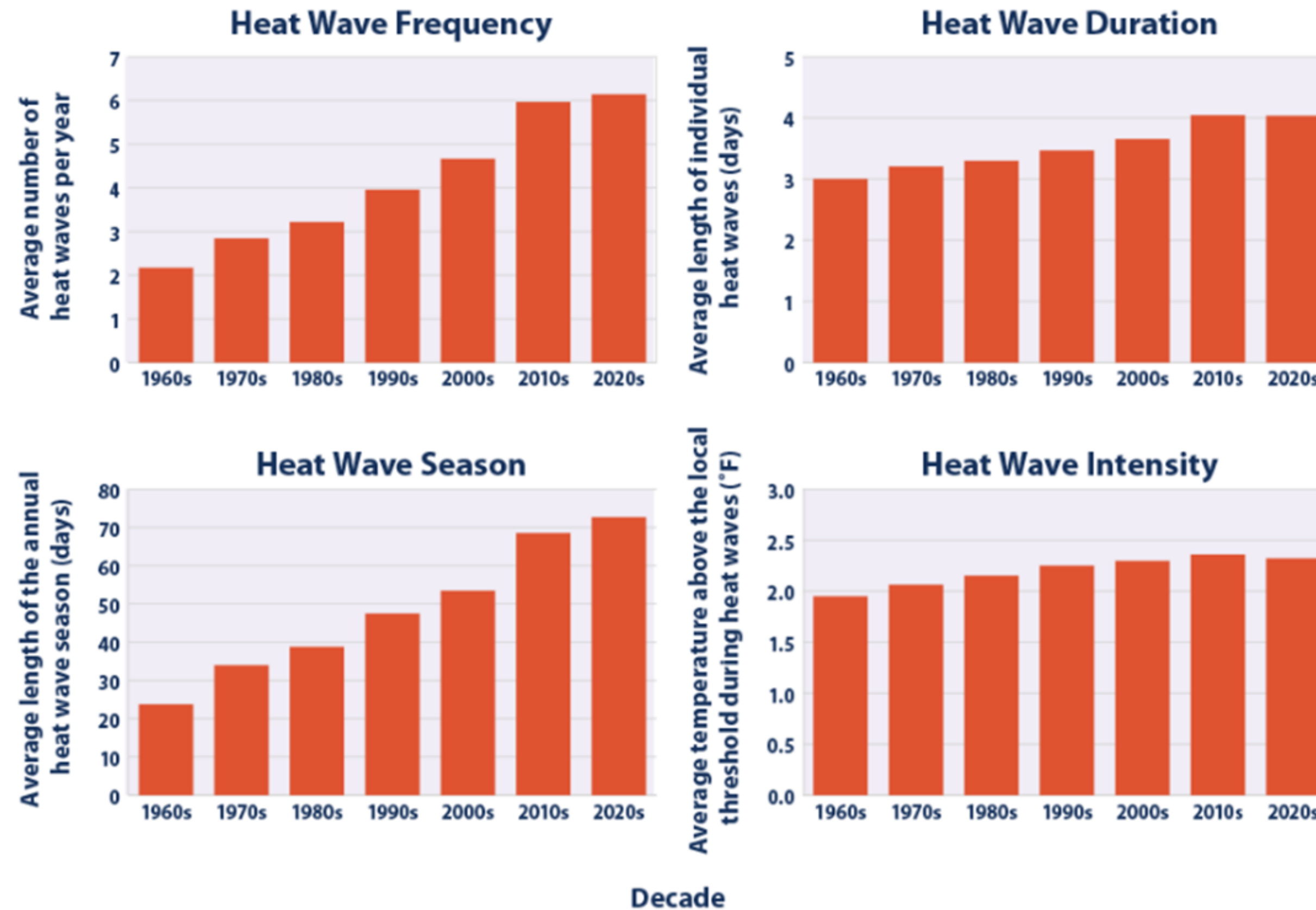
Dangers of Extreme Heat



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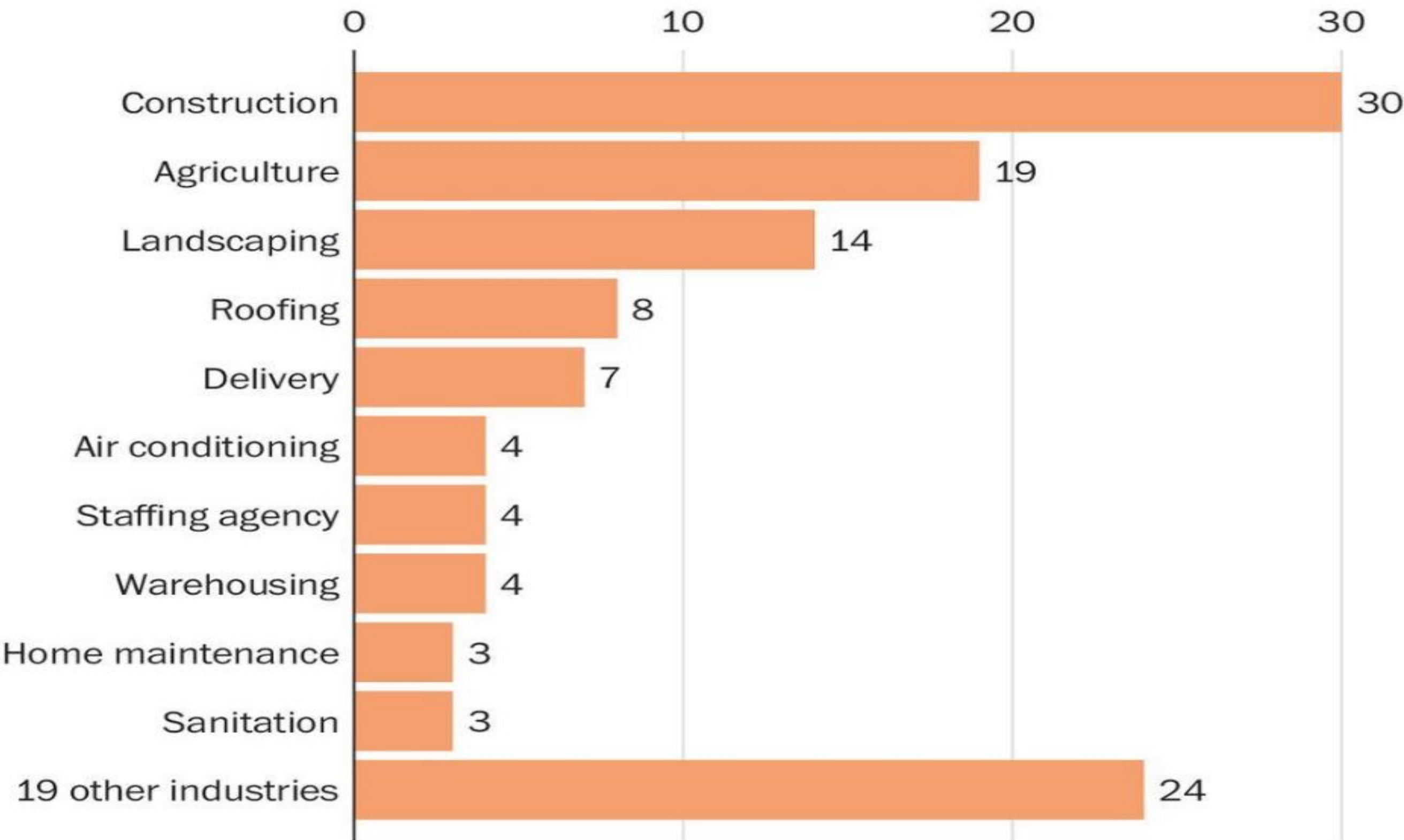
Extreme Heat is Increasing

Figure 1. Heat Wave Characteristics in the United States by Decade, 1961–2021



HEAT KILLS

OSHA reported heat deaths by industry, 2017-2022



Source: OSHA

JACOB BOGAGE AND ELI TAN / THE WASHINGTON POST

HEAT REGULATIONS

*OSHA
General
Duty Clause*

California

Colorado

Minnesota

Oregon

Washington

Dallas, TX








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Reducing the Risks of Climate-Related Litigation

WHO BEARS THE RISK?



RESILIENCY SAVES MONEY

National Institute of BUILDING SCIENCES™		ADOPT CODE	ABOVE CODE	BUILDING RETROFIT	LIFELINE RETROFIT	FEDERAL GRANTS
Overall Benefit-Cost Ratio		11:1	4:1	4:1	4:1	6:1
Cost (\$ billion)		\$1/year	\$4/year	\$520	\$0.6	\$27
Benefit (\$ billion)		\$13/year	\$16/year	\$2200	\$2.5	\$160
 Riverine Flood		6:1	5:1	6:1	8:1	7:1
 Hurricane Surge		not applicable	7:1	not applicable	not applicable	not applicable
 Wind		10:1	5:1	6:1	7:1	5:1
 Earthquake		12:1	4:1	13:1	3:1	3:1
 Wildland-Urban Interface Fire		not applicable	4:1	2:1	not applicable	3:1

WHAT DO YOU DO?

Identify the potential risks to the project

Identify which party bears responsibility for each risk and related resiliency solution

Outline each party's responsibility in the contract documents

Ensure resiliency is incorporated during and after the project is completed

AIA HAZARD & CLIMATE RISK FORM

Project details

1. Estimated building service life; design date _____

2. Primary source(s) of hazard risk identification _____

3. Hazard risk profile

Hazard type	Magnitude	Notes	Risk rating	Source and date

RESILIENCY IS A COMMUNITY ISSUE



Pop-Up Question

- **What was the leading cause of construction disputes in 2019 and 2020 in North America according to a recent global study?**
 - a) Failure by the parties to the construction relationship – owners, contractors, subcontractors, etc. – to understand and/or comply with their contractual obligations
 - b) Financial disagreements
 - c) Design flaws
 - d) Material shortages

a) Failure by the parties to the construction relationship – owners, contractors, subcontractors, etc. – to understand and/or comply with their contractual obligations.

THANK YOU! If you have any questions, please contact one of the presenters



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