

WACA  
WINTER  
WORKSHOP

YAKIMA  
CONVENTION AND  
EVENT CENTER  
YAKIMA, WA

THURSDAY  
JANUARY 30, 2025



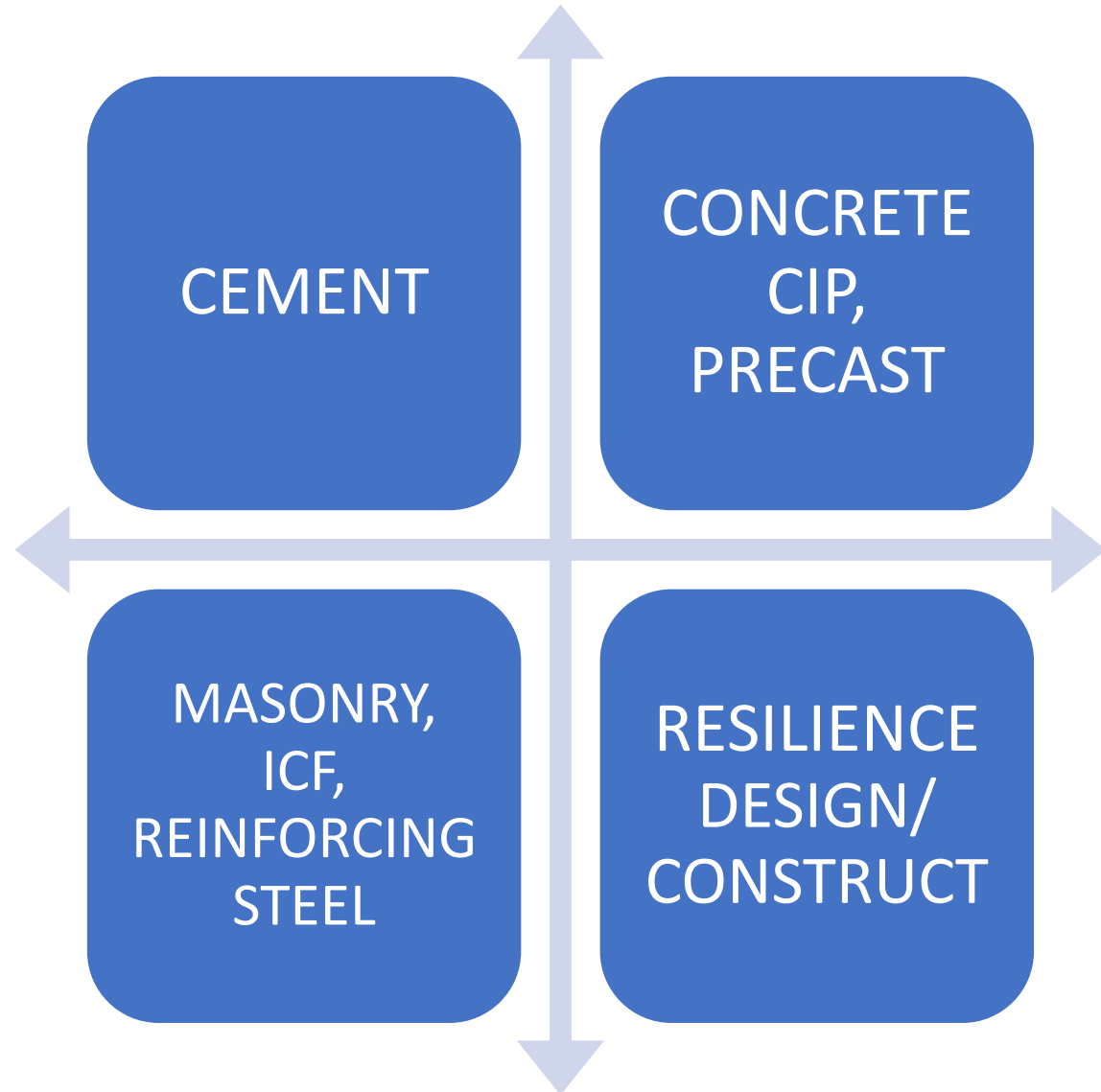
WILLIAM LARSON, CHAIRMAN

# PNBRC MEMBERS AND INDUSTRY PARTNERS



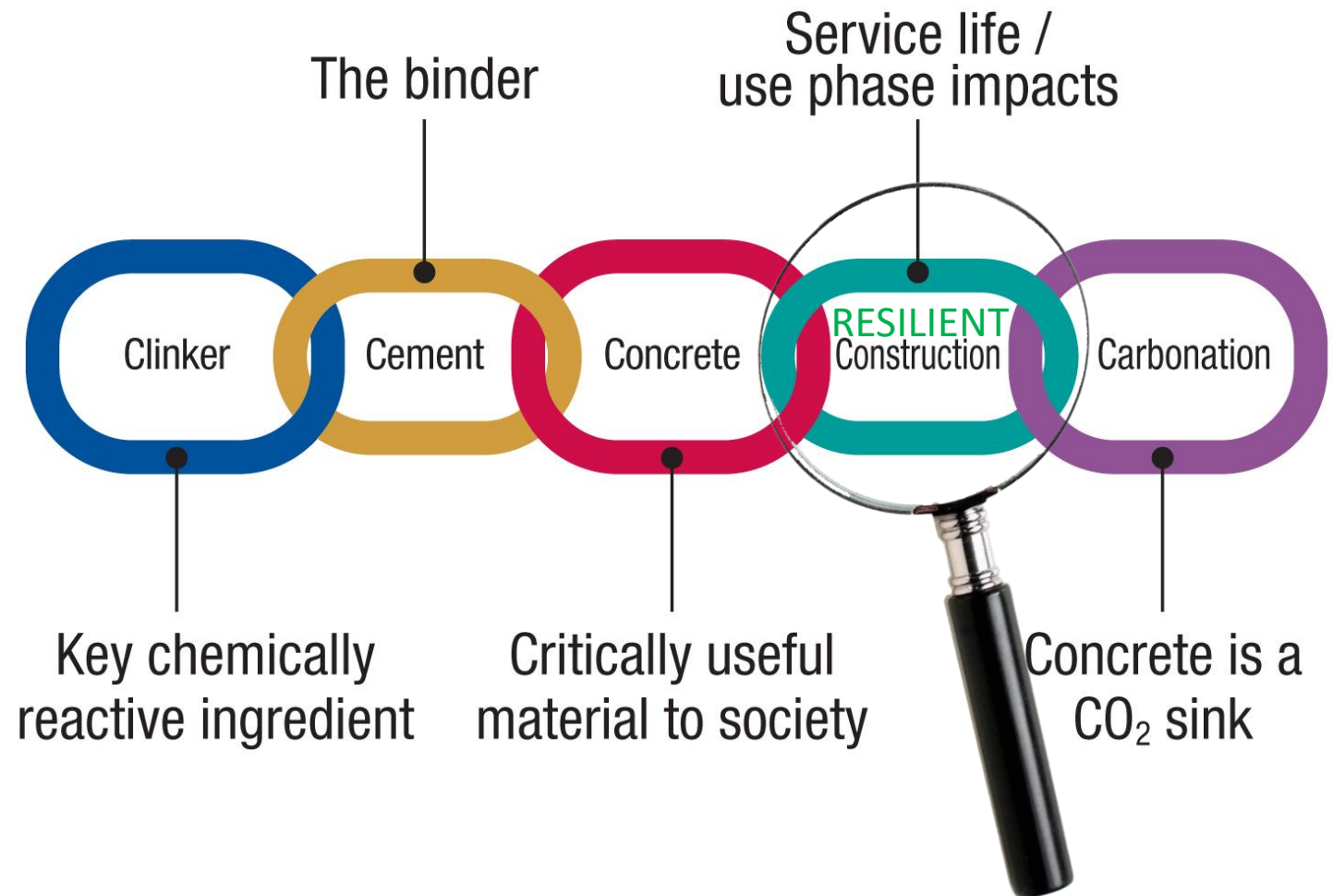
**ONE INDUSTRY ... ONE MISSION ... MANY PARTNERS**

**CONNECT  
THE  
PUZZLE  
PIECES**



# PATHWAY TO RESILIENCE AND CARBON NEUTRALITY

THIS IS WHY IT IS SO IMPORTANT TO REDUCE  
CARBON AT EACH LINK OF THE VALUE CHAIN



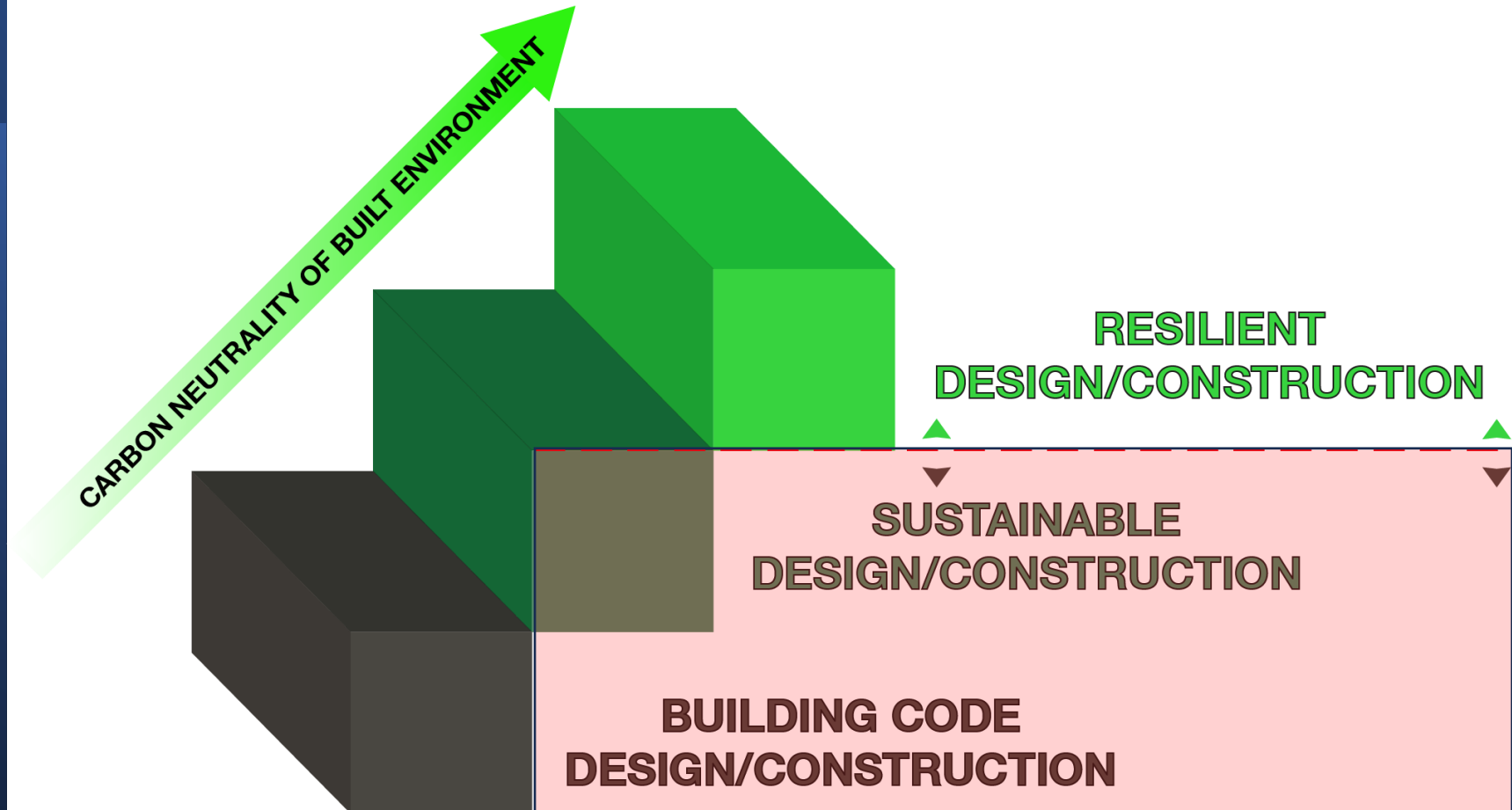
WHY ADVOCATE  
FOR  
RESILIENT  
DESIGN  
AND  
CONSTRUCTION

so  
why  
resilience???

RESILIENT DESIGN AND CONSTRUCTION IS  
PLANNING, DESIGNING, AND BUILDING  
OUR BUILT ENVIRONMENT TO  
SUSTAIN AND SURVIVE **PROBABLE IMPACT**  
FROM PROGRESSIVE CLIMATE RELATED  
AND EPISODIC NATURAL DISASTERS.

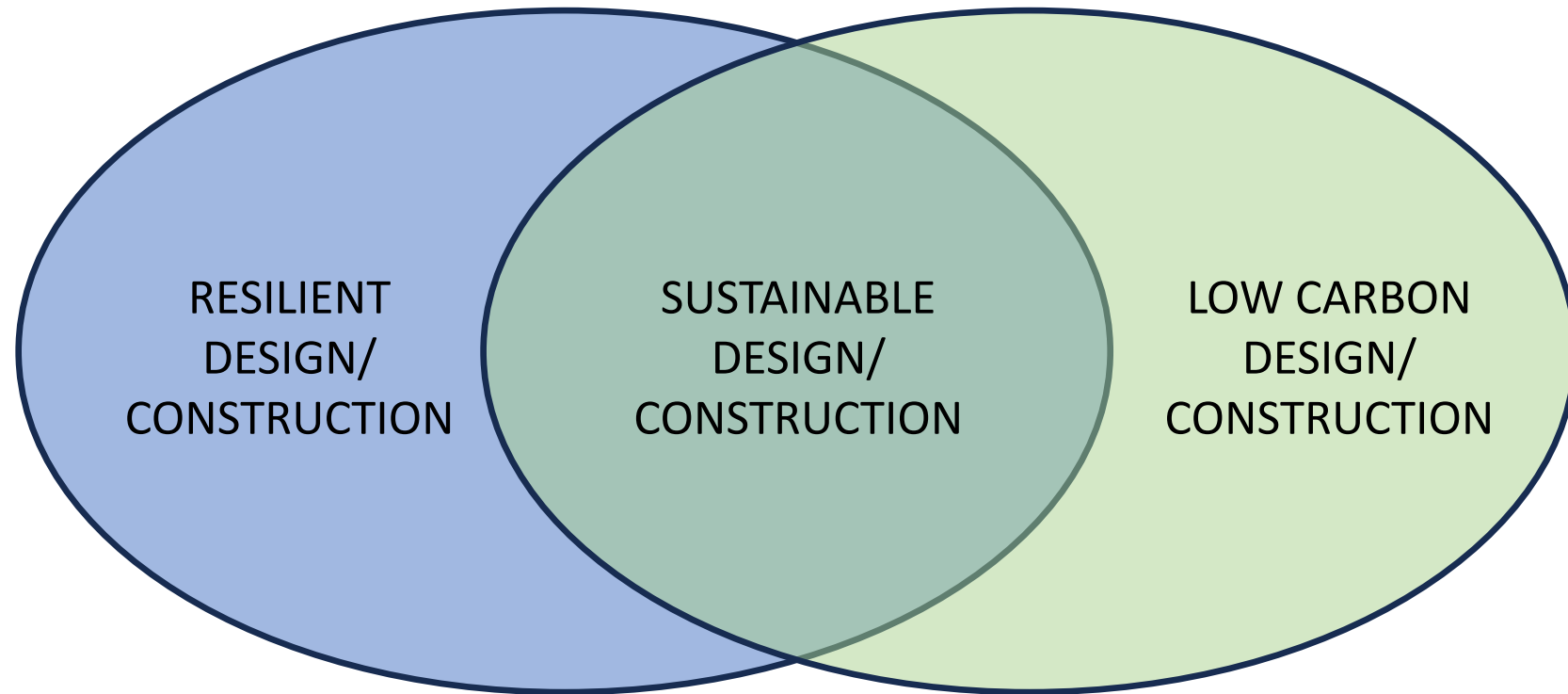
MINIMAL BUILDING  
CODES  
RESILIENT DESIGN/  
CONSTRUCTION  
AND  
CARBON NEUTRALITY  
RELATIONSHIP

**BUILDING BEYOND MINIMAL BUILDING CODE  
AND SUSTAINABLE DESIGN CRITERIA TO INCREASE  
ROBUSTNESS MAXIMIZING CARBON NEUTRALITY**



THE  
RELATIONSHIP  
BETWEEN  
SUSTAINABILITY  
AND RESILIENCE

IS IT TRULY SUSTAINABLE IF YOU HAVE TO  
REPAIR OR BUILD IT MORE THAN ONCE?



**“SUSTAINABILITY ONLY HELPS THE PLANET ...  
IF YOU CAN SUSTAIN IT!”**



THE  
RELATIONSHIP  
BETWEEN  
RESILIENCE AND  
INSURABILITY/  
FINANCE

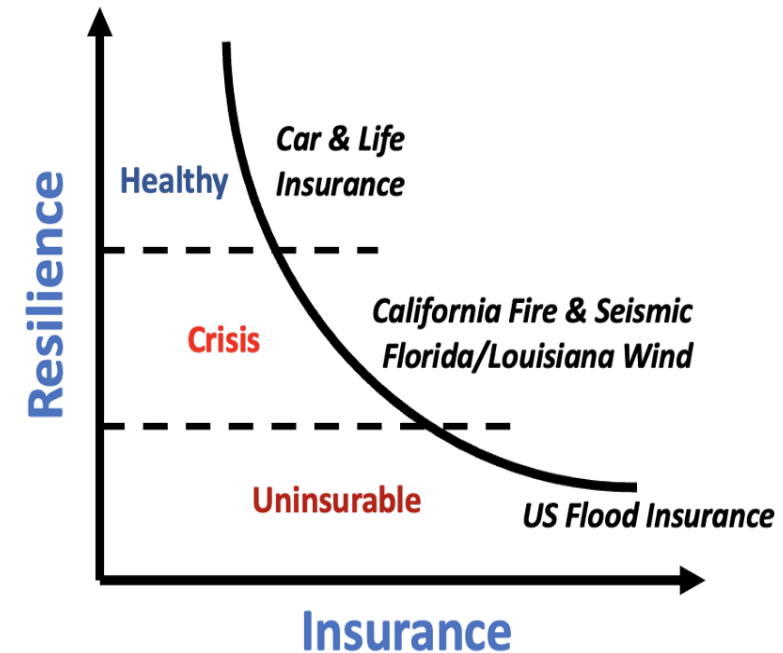
“WE DON’T HAVE AN INSURANCE CRISIS  
... WE HAVE A RISK CRISIS!”

- Several companies like **State Farm, Allstate, Farmers and more** have limited or vacated their property and casualty insurance sales in California and/or Florida
- **Climate related events and inflation** have combined to make insurance claims more frequent and more costly in disaster-prone regions.
- Since 1980 - >300 \$1B Natural Disasters costing \$2.2T
  - <1/2 of losses covered by private insurance placing a **heavy burden on government** to mitigate impact
- Two So. CA Fires will be >\$250B
- **Hamurabi 1792BC** Building Codes



# THE RELATIONSHIP BETWEEN RESILIENCE AND INSURABILITY/ FINANCE

## Where are you on the Resilience-Insurance Curve?



## USRC ALIGNMENT AND COLLABORATION

“Green design without resilient design will not achieve true sustainability. Furthermore, we cannot achieve true carbon neutrality without considering how buildings end their lives as well as how they begin them. Resilience is the key to making buildings last longer in the face of natural disasters and climate change, thus allowing us to decommission and dispose of them in ways that minimize environmental harm. When added to the overall carbon equation, these considerations will show that construction using “resilient design” and “durable materials” like concrete and steel will reach the goals of net zero impacts sooner than expected. To achieve our long term goals we must recognize that true sustainability requires both green and resilient design.”

**Evan Reis, US Resiliency Council 2023**





# US Resiliency Council Performance Metrics

Often, an investment of less than 2% beyond a code minimum construction budget will achieve a resilient design that can reduce damage/repair costs by 20-30% of replacement cost and reduce business interruption by six months to a year.



+0-2% Cost



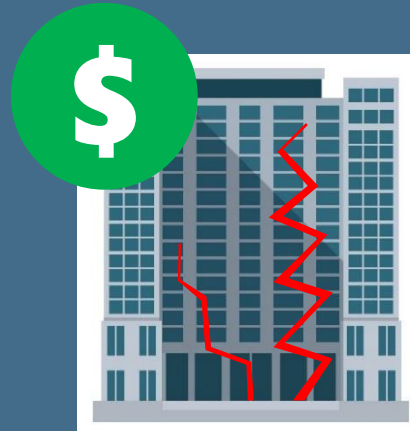
Code minimum

## USRC BUILDING RATING SYSTEM



### SAFETY

★★★★★	Blocking exit paths unlikely
★★★★★	Serious injuries unlikely
★★★★	Loss of life unlikely
★★★	Isolated loss of life
★	Loss of life likely



### DAMAGE

Minimal Damage (<5%)
Moderate Damage (<10%)
Significant Damage (<20%)
Substantial Damage (<40%)
Severe Damage (40%+)



### RECOVERY

Immediate to Days
Within days to weeks
Within weeks to months
Within months to a year
More than a year

**CODE BASED DESIGN**

**RESILIENCE BASED DESIGN**

# USRC ALIGNMENT AND COLLABORATION



## Resilience and the Path to Net Zero 2050 (or Sooner)

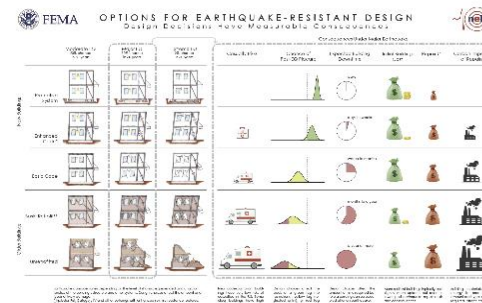
Society can achieve the goal of net zero carbon by 2050 or sooner with the critical consideration of the full-life cycle of buildings and infrastructure, including the significance of the Use Phase and what happens at End of Life.

Extending the lives of our buildings, means they require replacement less often, and their embodied carbon can be spread out over a longer period. Buildings made from concrete, steel and other durable materials can outlast the effects of natural disasters by decades when compared to wooden structures.



Deconstruction or demolition must occur on **our** terms, not Nature's. One leads to deconstruction and recycling of materials, the other leads to destruction and generation of decomposing debris destined for landfills. 10 million tons of debris were created as a result of Superstorm Sandy, because many of the "green" buildings, were not also resilient.

Resilience is the key to making buildings last longer in the face of natural disasters and climate change, thus allowing us to decommission and dispose of them in ways that minimize environmental harm. When added to the overall carbon equation, these considerations will show that construction using "resilient design" and "durable materials" like concrete and steel will reach the goals of net zero impacts sooner than expected.



Engineering science has advanced to the point that design professionals can actually quantify the performance of buildings in natural hazards, including damage costs, repair times, and the likelihood of a structure surviving a major event. This means that we can now calculate the expected lifetime of buildings, considering climate and geological perils. We can also translate that information into net carbon costs and savings.



## USRC COLLABORATION

### “RESILIENT STRUCTURAL DESIGN”

- MITIGATE REPAIR OR RECONSTRUCTION OF DEFICIENT STRUCTURES --- REDUCED EMISSIONS
- VERY LOW INCREASED UP-FRONT COST AND CARBON EMISSIONS COMPARED TO REPAIR OR RECONSTRUCTION
- TRUE ENVIRONMENTAL BENEFIT OF RESILIENT DESIGN IS NOT CONSIDERED IN CURRENT CARBON EQUATIONS
- WHOLE BUILDING WHOLE LIFE CYCLE ASSESSMENT FOR FULL ENVIRONMENTAL IMPACT

# EFFICIENCY THROUGH TARGETED ADVOCACY AND COMMUNICATION



## *Pacific NorthWest Economic Region*

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- Canadian Provinces of **Alberta, British Columbia, and Saskatchewan** and the territories of the **Northwest Territories** and the **Yukon** plus the US States of **Alaska, Idaho, Oregon, Montana, and Washington.**
- **2025 President is Cindy Ryu WA State Representative**
  - **“Champion for Resilience”**
- Leading forum where **people in the policy world and the business world come together to figure out solutions to regional challenges.**



2025 ANNUAL  
SUMMIT

BELLEVUE, WA



*Pacific NorthWest  
Economic Region*



# ADDRESSING THE FULL BODY OF PNWER SUMMIT



INTRODUCTION BY WA REPRESENTATIVE CINDY RYU  
(PNWER PRESIDENT IN 2025)



# ADDRESSING THE FULL BODY OF PNWER SUMMIT



WR LARSON Chairman PNBRC  
ADDRESSING PNWER BODY PLENARY LUNCH  
Designing for Resilience: Mitigating the Cost of Disasters Through  
Strategic Planning and Resilient Design



# DISASTER RESILIENCE STRUCTURAL PROTOTYPE



THANK YOU!



[www.buildingresiliencecoalition.org](http://www.buildingresiliencecoalition.org)