

Disasters: Necessary to Achieve Resilience

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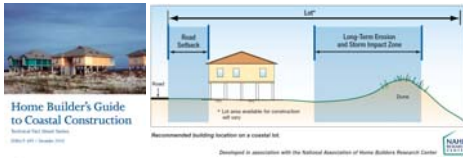
“Nobody cares about the work you do!”

- To achieve a resilient society
 - (1) Public needs to know
 - (2) Public needs to care

A knowledgeable public is a “necessary condition” to achieve a resilient society

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Myth: People deeply care about preventing disasters



“Sand dunes are important first lines of defense against coastal storms and can do much to reduce losses to inland coastal development. It can be assumed that any removal or other alteration of a sand dune will render the dune more susceptible to erosion and increase potential damages to structures behind that dune.” —
<https://www.fema.gov/glossary/sand-dunes>

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Myth: People deeply care about preventing disasters



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Myth: Building Codes are the solution



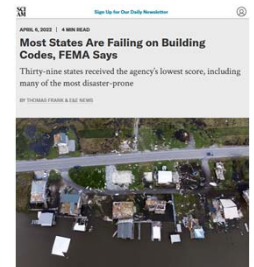
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Myth: Building Codes are the solution

- FEMA ranked all states based on “stringency” of their building codes
- 19 states scored 0
- Good news: they can only go up in score!



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Myth: Implementation and enforcement of state-of-the-art building codes is the solution

Free Download

<http://www.michelbruneau.com>

Quake Centre

RECONSTRUCTING CHRISTCHURCH: A Seismic Shift in Building Structural Systems

www.quakecentre.co.nz

Christchurch Earthquake

Life Safety ≠ Resilience

1280 demolished

Success?

Resilient reconstruction because...

Earthquake Warning

This is an unreinforced masonry building. You may not be safe inside or near unreinforced masonry buildings during an earthquake.

Time to commit. Do you enter the building?

(BTW: This sign has been posted, as required by California - Cal. Gov. Code § 8875.8)

#earthquake #earthquakeengineering #structuralengineering #structuraldisaster

Time to commit. Do you enter the building?

You can see how people vote. [Learn more](#)

Definitely enter the building	62%
Only enter if can't get refund	8%
Do not enter even if no refund	30%

89 votes • 1 to left • [Hide results](#)

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Myth: Mandatory earthquake warning laws incentivize seismic retrofit

- THEORY: 30%
- PRACTICE: 0%
- POSSIBLE EXPLANATION:
 - Risk assessment bias
 - Poll bias
 - Information overload

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A 2014 Property and Environment Research Center (PERC) study found that cancer rates in California have not fallen significantly since Prop 65 took place compared to other states.

WARNING: The Disneyland Resort contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm. Proposition 65, California Health & Safety Code Section 25249.6 et seq.

PROP 65 WARNING

WARNING: Certain risks and damages could or would have been avoided after the Disneyland Resort was fully compliant with the state of California's Proposition 65, which requires businesses to disclose the chemicals and other substances that are known to the state of California to cause cancer and birth defects or other reproductive harm.

Myth: Journalists can communicate with the general public
NY Times "Fail": Francis S. Lee

Response Posted on LinkedIn

Michel Bruneau • You
 SUNY Distinguished Professor • Author of "The Blessings of Disaster..."

The New York Times asked me "Are fracture critical bridges more likely to collapse than non-fracture critical types in case of a big vessel collision?" and a few other things. Here are the thoughts and basic concepts I shared with them. The 4th point, I believe, is the more important. This is for a non-technical audience.

- 1) There has been a lot of confusion and misinformation in the press lately about "fracture-critical" and "non-fracture critical" bridges. That classification is irrelevant for the case at hand, because what drives the design of a long-span bridge is the need to support a roadway between two towers/piers as far from each other as required by the river or navigation channel to clear. As such, losing one of the towers/piers of a long-span bridge is as fatal as losing one leg of a three-legged stool. I can't think of a single long-span bridge that would survive the loss of one of its two main-span towers/piers. Adding towers only to prevent collapse if losing one tower would be counter to the objective of achieving a long clear span between towers in the first place.
- 2) Because towers/piers are so critical, measures are usually taken to protect them from hazards, such as bridge collisions. The calculations to determine the peak of vessel collision would be a non-technical audience.

Wagdy Wassef • 1st
 Vice President, National Bridges and Structures Practice at WSP U...
 Thank you Michel for the simple language that non technical audience can fully understand.

Thomas Gieger • 1st
 Thanks for the clear comments and for offering clear and understandable solutions that address the broader issue.

Ronald Saeed • 1st
 As a structural engineer that specializes in bridge design, I could not agree more with your talking points. Clear, short and to the point. Whether or not the NY Times reported that way is another matter. One thing I would add is that while a structure is never a just one single tall and sometimes we build, have with it several smaller structures over the years.

Benjamin Sigmund • 1st
 Thank you. This is the point I've been waiting to read since the Baltimore bridge collapsed.

Alphonse Muller Tostet • 1st
 Hi, I'm a structural engineer and I'm a big fan of your work.

Francisco R. • 2nd
 Thanks for the clear and simple language. I'm a structural engineer and I'm a big fan of your work.

Joseph R. Kline • 1st
 I think it is very important that non-technical personnel and structural engineers in general, become familiar with all the concepts covered by our distinguished professor Michel Bruneau. This post and also elaborated in his famous books in this field is superb.

Wagdy Wassef • 1st
 Thank you Michel for the simple language that non technical audience can fully understand.

Edward Wassef • 1st
 Very clearly and succinctly expressed, Michel.

Nicholas D. Dineen • 1st
 Well done!

Jason R. Uppel • 1st
 Send this post to Jennifer tomorrow at 10:00 AM.

The Problem






THE BLESSINGS OF DISASTER
 MICHEL BRUNEAU

Who cares about Anthropology and Civilization History?


- 45 million copies worldwide – translated into 65 languages




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Making the public knowledgeable

Very painful way (usually works)



Less painful (might work)



"Fascinating" – Publishers Weekly