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# What Do We Do Now? *The Path to Community Resilience*

*Build It Better Leadership Forum*

Charlotte, North Carolina

May 17, 2013

# Mission: Strengthening Homes & Safeguarding Families

- At FLASH, we *partner* with leading public, private and nonprofit academic, consumer, entertainment, financial services, product, research, service and technical organizations to deliver the latest advances in disaster safety information to the public
- *Create* a public value for strong, safe and sustainable homes
- *Deliver* initiatives that fit into two program tracks
  - Storytelling for the public
  - Curriculum for students & professionals
- *Mainstream* the science of safety

# Our Founding & Legacy Partners

- FLASH proudly acknowledges its Legacy Partners for their unwavering support of FLASH and its mission.
- FLASH also wishes to recognize its Founding Partners, whose commitment and involvement with FLASH propelled us towards our bright future.



You're Invited

## 2013 FLASH Annual Conference

*Mitigation 360°*

November 20 – 22, 2013  
Lake Buena Vista, FL

<http://www.flashannualconference.org>

# Essential Elements for Strong, Safe & Sustainable (Resilient) Communities

- Strong, well-enforced **Codes & Standards**
- **Consumers, Leaders** who understand, value & demand stronger, safer buildings
- **Higher Education** that includes building codes & mitigation
- **Incentives** (Insurance, Real Estate, Tax)
- **Innovators** in all sectors
- **Research** – Building, Social Science & more



# Case Study #1 – A Tale of Two Earthquakes

- On January 12, 2010 at approximately 1700 hours, a 7.0 magnitude earthquake struck 16 miles outside Port-au-Prince, Haiti
- The Haitian government reported that the earthquake affected three million people
- Killing an estimated 230,000
- Injuring 300,000
- 1,000,000 homeless
- Collapsed or severely damaged an estimated 250,000 residences and 30,000 commercial buildings

# Chile - A True Contrast

- Six weeks later on February 27th at approximately 0300 hours, an 8.8 magnitude earthquake occurred off the coast of Maule, Chile.
- 80% of the country's population felt the shake and damage was documented as far away as San Diego, California.
- The event generated tsunami warnings in 83 countries and scientists believe that it shortened the length of the day by 1.26 microseconds
- Despite the larger magnitude and documented impacts in Chile, the death toll reached a total of 521 compared to Haiti's loss of 230,000 lives

# What did we learn?

- How could a quake in Haiti, 500 times less powerful than Chile, cause so much more death and destruction? Was there an act of man or nature that could explain such a tale of contrasts?
- The undisputed answer is the adoption and use of modern building codes. Haiti is without meaningful modern codes while Chile uses modern codes comparable to those in seismic zones of the United States.
- Was Chile that much smarter than Haiti? Yes and no. Chile embraced better codes, but only following deadly lessons in 1960 when a 9.5 magnitude earthquake established the public value for modern building codes.
- After 1960, Chile embraced strong and safe building practices to protect families, communities and society from the real threat of living in a seismic zone. Their investment paid unfathomable dividends in 2010.

# Case Study #2 – The Harrison Family



- Kevin, Sarabeth, Sophie (3 years) & Mason (5 months)
- Athens, Alabama
- Wednesday, April 27, 2011



McCullley Mill Rd

County Rd 95















The Green box is the addition that is still standing in some of the images

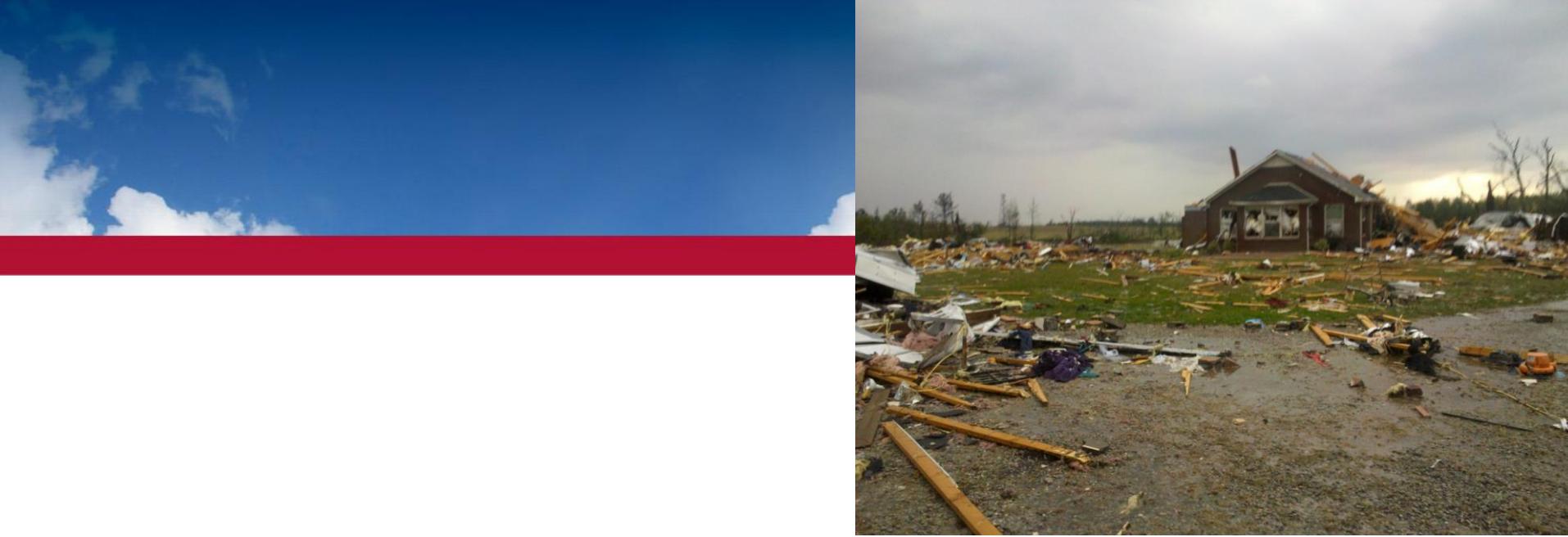
The Yellow box is the location of the storm shelter

The other other boxes are where the corresponding colored trucks were in the images



## Lessons?

- Only other surviving part of the Harrison home (besides the safe room) was an addition built using model codes
- A post-event, NSF-funded study concluded that much of the damage happened at winds below the EF4, so building codes could have saved lives and property



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# Case Study #3 – Memphis Seismic Codes

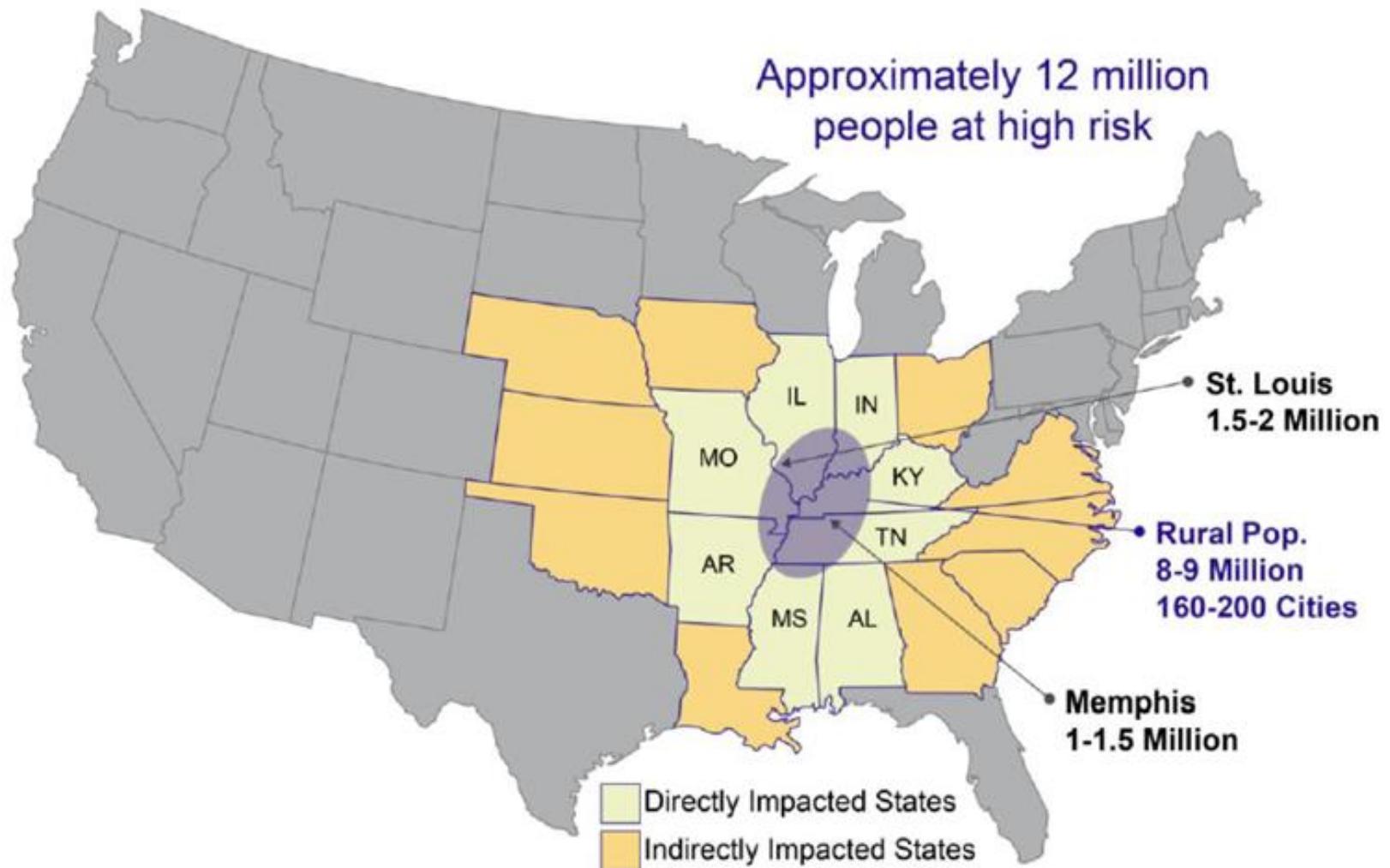


Figure 8: Modern-day population at risk in the New Madrid Seismic Zone



# Damage Projections for Memphis – NLE 2011

- The City of Memphis has an aging infrastructure, and many of its large buildings, including unreinforced schools and fire and police stations, would be particularly vulnerable when subjected to severe ground shaking.
- Relatively few buildings were built using building codes that have provisions for seismic-resistant design. Soil liquefaction and related ground failures are likely to occur in downtown Memphis along the Mississippi River and along the Wolf River that passes through Memphis.
- Older highways and railroad bridges that cross the Mississippi River, as well as older overpasses, would likely be damaged or collapse in the event of a major NMSZ earthquake. Some of the bridges and pipelines crossing the Wolf River might be damaged or destroyed.

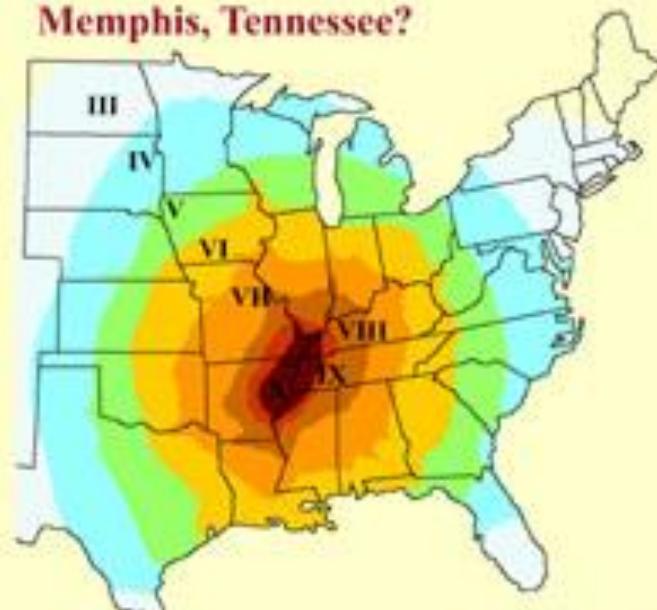
# So why is this (is it?) a national concern?

- Life Safety
- Economic Vitality
- Interdependency
  - Thirty-percent (30%) of all U.S. goods are processed through Memphis
- Efficacy
  - Most efficient time to get it right is at the time of construction

## Memphis 7.9

Book 1 of The 7.9 Scenario

What happens WHEN, not IF,  
a great earthquake strikes  
the New Madrid Fault Zone,  
just 45 miles from  
Memphis, Tennessee?



By Sam Penny

# Case Study – Memphis Seismic Codes - *Status*

- Chattanooga, Jackson, Madison County, Dyersburg, Nashville/Davidson County, Bristol/Knoxville and Southaven already have the new codes in effect
- The Tennessee Legislature declined to delay or otherwise weaken the state's building code statutes
- Nonetheless interests in Memphis are working to ...
  - Delay the effective date (ordinance passed on first reading 5/15/13 ... next vote is 5/20/13)
  - Change the seismic zone definition in the model codes
- Disaster Safety Movement leaders can lend a hand and support the right outcomes by working together

# Evolving Case –Ten Texas Tornadoes (5/15/13)

- No codes in place for Hood and Johnson Counties
- Some for Cleburne and Granbury but varied
- Only certainty is that a safe room would have helped



# And ... what about North Carolina?

- Builders are successfully advancing [House Bill 120](#) to push building code adoption cycles out to six (6) years. Their description of the purpose ...
  - *This key piece of legislation will help builders with implementing a clear and uniform set of codes upon which to build. This is solid legislation that has been thoroughly vetted and will help the home construction industry across the state.*
- This bill is nearly identical to one passed in Oklahoma and is part of a trend that damages the cause of using modern, model codes as a primary element of resilience

# So what is the Path Forward to Community Resilience?

Establish a values that support ...

## I. Building Code Adoption

- Modern, model codes adopted within three years (not six) of new versions with no allowance for negative amendments.

## II. Building Code Enforcement

- Mandatory system of enforcement by a cadre of licensed, trained professional code officials with continuing education and codes of conduct

## III. Building Code Transparency

- Undertake code development and administration in a manner that is open, honest and accountable

# *Safety Delayed is Safety Denied*



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