A REVIEW OF BUILDING CODES AND MITIGATION EFFORTS TO HELP MINIMIZE THE COSTS ASSOCIATED WITH NATURAL DISASTERS

(112–94)

HEARING

BEFORE THE

SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS, AND EMERGENCY MANAGEMENT

OF THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

JULY 24, 2012

Printed for the use of the
Committee on Transportation and Infrastructure

Available online at: http://www.gpo.gov/fdsys/browse/committee.action?chamber=house&committee=transportation

U.S. GOVERNMENT PRINTING OFFICE

75–290 PDF WASHINGTON : 2012

For sale by the Superintendent of Documents, U.S. Government Printing Office
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July 20, 2012

BRIEFING MEMORANDUM

TO: Members of the Subcommittee on Economic Development, Public Buildings, and Emergency Management

FROM: Subcommittee on Economic Development, Public Buildings, and Emergency Management Staff

SUBJECT: Legislative Hearing on "A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters"

PURPOSE

The Subcommittee on Economic Development, Public Buildings and Emergency Management will meet on Tuesday, July 24, 2012, at 10:00 a.m., in 2167 Rayburn House Office Building to receive testimony from a Member of Congress, the Federal Emergency Management Agency (FEMA), emergency management organizations and officials and the private sector. The purpose of the hearing is to examine how building codes and mitigation efforts minimize costs associated with disasters and save lives. In particular, the Subcommittee will examine H.R. 2069, the Safe Building Code Incentive Act, introduced by Representative Diaz-Balart of Florida.

BACKGROUND

Legislation

On June 1, 2011, Rep. Diaz-Balart introduced H.R. 2069, the Safe Building Code Incentive Act. The bill currently has 30 co-sponsors. The bill would provide incentives, through mitigation assistance, to States to adopt and implement statewide building codes to minimize damages from disasters and save lives. Rep. Diaz-Balart introduced similar legislation in the 111th Congress and the provisions of that bill were incorporated into H.R. 3377, the Disaster Response, Recovery, and Mitigation Enhancement Act of 2009, which was favorably reported out of the Committee last congress.

Federal Emergency Management Agency: History

FEMA was established in 1979 by Executive Order by President Carter following a number of massive disasters in the 1960s and 1970s which resulted in proposals by the National Governors Association and others to streamline and cut the number of agencies States were required to work with following a disaster. Prior to the creation of FEMA, the federal government's emergency response mechanisms were scattered among many agencies throughout the government. The creation of FEMA helped to centralize these authorities and the coordination of the federal government's response to a disaster. FEMA's primary authority in carrying out its emergency management functions stems from the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act).[1] Following more than two decades as an independent agency, the Homeland Security Act of 2002 (P.L. 107-296), which created the Department of Homeland Security (DHS), placed FEMA within DHS, and FEMA's functions were dispersed among various offices and directorates of DHS.

In 2005, Hurricanes Katrina and Rita devastated the Gulf Coast. Following Hurricanes Katrina and Rita and the poor response that occurred, several investigations and congressional inquiries and hearings took place to examine the preparation for, response to, and later recovery from these hurricanes. In particular, the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina was formed and culminated in the issuance of a report entitled, "A Failure of Initiative: The Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina" on February 15, 2006.

Following the issuance of this report, Congress enacted the Post-Katrina Emergency Management Reform Act of 2006 (PKEMRA) (P.L. 109-295), which put FEMA back together again within DHS. PKEMRA authorized the National Preparedness System and, among other things, FEMA for the first time in legislation. Legislation pending this Congress, H.R. 2903, the FEMA Reauthorization Act, would reauthorize FEMA and other FEMA programs and includes various reforms to cut costs and streamline the response and recovery processes following a disaster. That legislation was favorably reported by the Committee on March 8, 2012.

Disaster Assistance Programs

FEMA's major Stafford Act programs for disaster response and recovery in the aftermath of a major disaster are in the Public Assistance Program and the Individual Assistance Program. The Public Assistance Program, authorized primarily by sections 403, 406, and 407 of the Stafford Act, reimburses state and local emergency response costs and provides grants to state and local governments, as well as certain private non-profits to rebuild facilities. The Public Assistance Program generally does not provide direct services to citizens.

The Individual Assistance Program, also known as the Individuals and Households Program, is primarily authorized by section 408 of the Stafford Act. The program provides assistance to families and individuals impacted by disasters, including housing assistance. Housing assistance includes money for repair, rental assistance, or "direct assistance," such as the provision of temporary housing.

[1] 42 U.S.C. §§ 5121-5207.

Section 404 of the Stafford Act authorizes the Hazard Mitigation Grant Program (HMGP). HMGP provides grants to state and local governments to rebuild after a disaster in ways that are cost effective and reduce the risk of future damage, hardship, and loss from natural hazards. FEMA also provides grants under HMGP to assist families in reducing the risk to their homes from future natural disasters, through such steps as elevating the home or purchasing the home to remove it from the floodplain.

The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a natural disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing future disaster assistance payments. Congress reauthorized PDM last congress in the Pre-Disaster Mitigation Act of 2010 (P.L. 111-351).

Disaster Declarations

When state and local resources are overwhelmed and the "disaster is of such severity and magnitude that effective response is beyond the capabilities of the State and the affected local governments,"[2] the Governor of the affected State may request that the President declare a major disaster. If the President issues a declaration, federal resources are deployed in support of state and local response efforts.

There are two categories of incidents included in the Stafford Act – "major disasters" and "emergencies". A "major disaster" is defined under the Stafford Act as:

> Any natural catastrophe (including any hurricane, tornado, storm, high water, winddriven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this chapter to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby. [3]

An "emergency" is defined as:

> Any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement state and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States. [4]

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[2] Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. § 5170.
[3] 42 U.S.C. § 5122.
[4] Id.

The key distinction between a major disaster and emergency is that emergencies authorize fewer types of assistance and do not require a state level disaster declaration or a request from a governor. In addition, emergencies are typically less severe events, limited in cost or can be declared to "lessen or avert the threat of a catastrophe."[5]

In 2011, the President issued 99 major disaster declarations and 29 emergency declarations. The costs of these disasters can be significant. The PDM and HMGP grants are intended to lower these costs by encouraging communities to build in a way that mitigates the damages and thus lower the amount of assistance needed for those communities to recover.

Mitigation and Cost Savings

HMGP and PDM are important programs in reducing costs. Pursuant to a requirement of the Disaster Mitigation Act of 2000, the Congressional Budget Office (CBO) completed an analysis on the reduction in Federal disaster assistance as a result of mitigation efforts.[6] That study examined mitigation projects funded from 2004 to mid-2007. CBO found that of the nearly $500 million invested through Pre-Disaster Mitigation grants, future losses were reduced by $1.6 billion for an overall ratio of 3 to 1. In essence, for every dollar invested in mitigation, $3 were saved. CBO's analysis reaffirmed a prior study commissioned by FEMA and conducted by the Mutlihazard Mitigation Council of the National Institute of Building Sciences that concluded, in 2005, each dollar spent on mitigation saves $4 in future losses due to disasters.[7]

More recently, the National Association of Mutual Insurance Companies (NAMIC) commissioned a study to specifically examine the impact of the Building Code Incentive Act and states adopting and enforcing state-wide building codes.[8] The study focused specifically on hurricane and wind damages and concluded that the net savings since 1988 had building codes been adopted in hurricane damaged areas would have been $11 billion. Specifically, the study highlighted that since 1988, $125 billion had been paid out by FEMA in grants related to natural disasters, of which $67 billion was directly related to hurricane damage (54%). If the buildings exposed to these disasters had been built to model building codes, the losses could have been reduced by as much at $13 billion or close to 20%. While the Building Code Incentive Act provides an incentive of up to 4% more in mitigation funding for States which adopt building codes, the net reduction would still have been $11 billion.

Notwithstanding these studies, including CBO's own study on the subject, CBO's score for incentivizing building codes included as part of H.R. 3377 in the 111th Congress failed to account for the reduction of future costs. The hearing is intended to receive and review testimony from FEMA and emergency management, building code, and insurance experts on how mitigation measures and building codes, in fact, reduce the costs to the taxpayer and save lives.

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[5] 42 U.S.C. § 5122.

[6] "Potential Cost Savings from the Pre-Disaster Mitigation Program," Congressional Budget Office, September 2007.

[7] "Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities," Multihazard Mitigation Council, National Institute of Building Sciences, 2005.

[8] "Safe Building Code Incentive Act, Impact of Building Code Adoption and Enforcement of FEMA Disaster Grants, Final Report, Prepared by Thomas A. Ryan, FCAS and Robert K. Briscoe, April 4, 2012.

WITNESSES

The Honorable Mario Diaz-Balart (R-FL)
Member of Congress

Mr. David Miller
Associate Administrator, Federal Insurance and Mitigation Administration
Federal Emergency Management Agency

Mr. Jim Mullen
President
National Emergency Management Association

Mr. Jimmy Gianato
Director of Homeland Security and Emergency Management
State of West Virginia

Chief Hank C. Clemmensen
First Vice President
International Association of Fire Chiefs

Mr. Chad Berginnis
Executive Director
Association of State Floodplain Managers

Ms. Julie Rochman
President and CEO
Insurance Institute for Business and Home Safety

Mr. Rod Matthews, CPCU
P&C Operations Vice President
State Farm Insurance Companies

A REVIEW OF BUILDING CODES AND MITIGATION EFFORTS TO HELP MINIMIZE THE COSTS ASSOCIATED WITH NATURAL DISASTERS

TUESDAY, JULY 24, 2012

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ECONOMIC DEVELOPMENT,
PUBLIC BUILDINGS AND EMERGENCY MANAGEMENT,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:02 a.m., in Room 2167, Rayburn House Office Building, Hon. Jeff Denham (Chairman of the subcommittee) presiding.

Mr. DENHAM. The committee will come to order.

Today's hearing will focus on building codes and mitigation efforts to help minimize the cost associated with disaster.

I want to thank our witnesses and, in particular, Representative Diaz-Balart, former Republican ranking member of this subcommittee and a leader on these issues. Last June Representative Diaz-Balart introduced H.R. 2069, the Safe Building Code Incentive Act. That legislation would provide States with an incentive to adopt statewide building codes by providing additional mitigation assistance.

Why encourage mitigation in building codes? As a Member from California, I know firsthand the difference building codes can have in saving lives and reducing costs. With the threats of wildfires and earthquakes, good building code can mean the difference between life and death or whether homes remain standing or are completely destroyed.

But it is not just anecdotal evidence that shows mitigation saves lives and reduces costs. Study after study has shown that investment in mitigation projects directly results in lower Federal disaster payments. For example, a study completed by the Congressional Budget Office in 2007 concluded that of nearly $500 million invested by pre-disaster mitigation grants between 2004 and 1007, $1.6 billion in future losses was avoided. That is, for every dollar spent three dollars were saved.

The National Institute of Building Sciences also studied this issue and concluded that for each dollar spent four dollars were saved, and more recently, just this year a study commissioned by the National Association of Mutual Insurance Companies examined hurricane damages dating back to 1988. That study showed that since that time $67 billion of the $125 billion paid by FEMA for

disaster grants were related to hurricane and wind damage. That study concluded that had model building codes been in place, FEMA disaster payments would have been $13 billion, or almost 20 percent less.

Mitigation of building codes, in particular, has proven to save lives and taxpayer money. It makes sense for FEMA to encourage such mitigation measures so that the costs of disasters are reduced. And for families and communities facing a disaster, minimizing the damage and protecting lives is critical.

Again, I want to thank Representative Diaz-Balart for his work on this issue and the other witnesses here with us today.

I now call on Ms. Norton for a brief introduction statement.

Ms. NORTON. Thank you, Mr. Chairman.

And good morning. I want to join the chairman in welcoming today's witnesses to discuss the benefits of mitigation, and our building codes, in particular, may reduce costs associated with natural disasters.

Over the past several years, the subcommittee has held several hearings on the importance and benefits of mitigation, including building codes. The committee has referred to studies by the National Institute of Building Sciences and the Congressional Budget Office, both of which found that mitigation saves taxpayers three to four dollars of every dollar invested.

Mitigation does far more than save money. It reduces injuries and saves lives. The underlying question is what should Congress do to encourage more mitigation activities.

FEMA has two mitigation programs, the Pre-disaster Mitigation Program and the Hazard Mitigation Program. Both programs are essential to saving lives and saving tax dollars by decreasing the amount of damage resulting from disasters.

Over the past several years this subcommittee has explored other avenues for strengthening our Nation's efforts to limit future damages. One such avenue is strong building codes. It seems logical that if State and local communities have enforceable building codes in place when construction occurs, disaster related damages could decrease.

I look forward to hearing from our colleagues and the former member of this committee, who was ranking member when I chaired the committee, Mr. Diaz-Balart, and I am pleased to be a co-sponsor of his bill, H.R. 2069, the Safe Building Code Incentive Act of 2011. This bill would provide an incentive for States to adopt and enforce model building codes that will result in less damage from disasters.

Recently, the National Association of Mutual Insurance Companies released a study finding that FEMA would have saved $11 billion in hurricane damage payouts since 1988 if those damaged structures had been built to a model building code. While disasters always expose new avenues for mitigation after the fact, given the potential savings, Congress must do more to try to limit or prevent damage before it happens.

An important benefit of mitigation that is often overlooked is the investment in communities. Mitigation can help stimulate the economy through increased economic development. Communities benefit when the effects of disasters can be eliminated and prevented. Pro-

viding disaster resilient structures and infrastructure will encourage communities, residents and businesses to stay or return to a community after a disaster.

Finally, I must note that like the rest of the east coast, the District of Columbia was hit hard by the June storm with hurricane force winds that downed many power lines. I am interested in hearing more about mitigation and best practices to prevent or limit future power outages, particularly considering that the June storm was not the first time that this region had suffered mass power outages and, unfortunately, will probably not be the last if mitigation activities are not performed and if we do not learn more about how to mitigate these outages.

I appreciate today's witnesses preparing testimony to help the committee think through this issue.

Thank you, Mr. Chairman.

Mr. DENHAM. Mr. Rahall for an opening statement.

Mr. RAHALL. Thank you, Mr. Chairman.

I appreciate this opportunity, and I certainly welcome all of our witnesses to today's hearing, and particularly extend a special welcome to my friend and the head of our homeland security in West Virginia, Mr. Jimmy Gianato.

Jimmy has a well-deserved reputation in West Virginia as a crisis manager, having served as a West Virginia Director of Homeland Security and Emergency Management since 2005. His dedication and expertise were critically important in helping our State to organize its response to the June 29th derecho storm that left residences and businesses in every county of my State, 680,000 electrical customers in total without power.

Jimmy's tireless efforts are even more remarkable, given the loss of his own home in this came massive storm due to a lightning strike.

Mr. Chairman, it should be disconcerting to this committee that more than 2 weeks after that monstrous storm has passed thousands of West Virginia residents and businesses were still without power. That means 2 weeks without air conditioning in extreme heat; 2 weeks without refrigeration, as food spoiled in family kitchens and grocery stores; 2 weeks of relying on battery powered radios, flashlights, candles, canned goods, and the generosity of friends and neighbors.

But that is what we are about in West Virginia, coming together, helping each other, friends helping friends, neighbors helping neighbors, family helping family, strangers helping strangers. That is what we are about.

In addition, the lack of generators, gas stations created fuel shortages, leaving many in long, panicking lines that lasted for days. The lack of generators at hospitals and nursing homes, along with disruptions of power to water and sewage treatment facilities left elderly and vulnerable residents sweltering and caretakers struggling to provide food, water and medicine, and in some cases oxygen.

Small businesses were forced to close their doors for days, losing critical sales. Workers were unable to do their jobs, losing pay, and these already financially strapped families and business owners were hit with multiple unexpected costs, like the purchase of gen-

erators, if they could be found, made worse by the inability to get cash at banks that had no power.

The Governor of West Virginia estimates that residents and businesses combined lost a total of at least $340 million. Emergency response officials, all of whom I commend for the manner in which they responded, are appropriately asking questions about the feasibility and cost-effectiveness of burying power lines and considering the potential need for generators to be locally available at gas stations, health care facilities, and other public and private locations.

Concerns have been raised about the electrical grid and its capacity to endure emergencies like that devastating story, and I certainly associate with the comments just made by the gentlelady from DC. We must search for future methods of mitigating such power outages.

Since 1995 over $58 million has been invested in West Virginia mitigation activities, primarily for flood prevention. In 2005 and 2007, two separate studies confirmed that hazard mitigation activities reduced future losses by three to four dollars for every dollar spent.

This morning I am interested to learn about the types of mitigation activities that can be undertaken to prevent future power outages like that experienced on June 29th. Equally important, I want to know about potential steps that Congress should take to allow or encourage more mitigation activities to present future widespread power losses.

So I look forward to Jimmy's testimony and the other witnesses this morning on how risk assessment, planning and construction may help reduce further damage and limited some of the turmoil caused by the massive power outages.

Mr. Chairman, as I conclude, let me remind the committee that just yesterday the President did issue a disaster declaration to help communities, including every county in my district, with recovery expenses resulting from the June 29th story, making it the third such declaration for my State this year. While I am grateful that the administration acted so expeditiously and I commend FEMA for the manner in which they have reacted to this circumstance, as well as many others in the past, this declaration has opened the way for the public assistance.

And I must note that the State is now in the process of seeking that individual assistance to help families and businesses hard hit by the storm. It is certainly my hope that this part of the process has moved along just as quickly so that West Virginians can soon receive the full measure of help they so badly need to recover from this devastating storm.

Thank you, Mr. Chairman, and I look forward to today's witnesses.

Mr. DENHAM. I ask unanimous consent that written testimony by Representative Billy Long, a member of the Transportation and Infrastructure Committee, be entered into the record.

Without objection, so ordered.

[Please refer to the table of contents section entitled, "Prepared Statements Submitted by Members of Congress" for Hon. Long's statement.]

Mr. DENHAM. I want to just read one brief paragraph of his statement. "Joplin's tragedies should serve as a warning to all of our Nation's communities that despite modern technology advancement, we are still very much at the mercy of extreme natural events like hurricanes, tornadoes, earthquakes and floods. It is important that we continually work to improve the strength of our Nation's building, especially critical infrastructure in large buildings in order to reduce the damage and loss of life which can be caused by natural disasters. A little common sense should help take us a long way."

We will have two panels today. The first panel includes the Honorable Mario Diaz-Balart from Florida, Member of Congress, and Mr. David Miller, associate administrator, Federal Insurance and Mitigation Administration under FEMA.

I ask unanimous consent that our witnesses' full statements be included in the record.

Without objection, so ordered.

Since your written testimony has been made part of the record, the subcommittee would ask you to limit your testimony to 5 minutes.

Mr. Diaz-Balart, you may proceed.

TESTIMONY OF THE HONORABLE MARIO DIAZ-BALART, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA; AND DAVID MILLER, ASSOCIATE ADMINISTRATOR, FEDERAL INSURANCE AND MITIGATION ADMINISTRATION, FEDERAL EMERGENCY MANAGEMENT AGENCY

Mr. DIAZ-BALART. Thank you very much, Mr. Chairman and Ranking Member Holmes Norton, for holding this important meeting. It is a privilege to be back at the T&I Committee.

I served on this committee for 8 years, including the last 2 as ranking member. So, again, I appreciate the work that you are doing.

And as you said, my entire statement is in the record. So I will just hit some highlights if that is all right with you, Mr. Chairman.

Let me first piggyback on what you just read from Congressman Billy Long. He is absolutely right. We know what the problem is, and we know that there are a number of things that we can do to help. Whether it is the wildfires in Colorado this summer, whether it is the tornadoes that wreaked havoc in Missouri, whether it is Hurricane Irene which pounded and flooded big parts of the east coast, Mother Nature continuously sends us telegrams, sends up wake up calls.

The economic losses just this year, the first part of this year, of 2012, are already estimated to be at $14.6 billion. I mean, it is mind boggling. So given those facts and given also the fiscal climate that we face, it, frankly, does not make any sense just after a big storm just do another emergency supplemental.

We know that these storms are going to continue to happen, and we also know that there are meaningful steps that we can take to promote sound strategies that save lives, that mitigate the devastation of future disasters, and by the way, ultimately also save taxpayers money.

A commonsense approach, as the ranking member said just a little while ago, should be to adopt model building codes that will make our homes and our businesses more resistant to the forces of nature. Strong building codes are widely accepted in the emergency management community as being our best line of defense against these storms, these natural disasters.

So while the evidence is overwhelming, most States have yet to either adopt strong building codes or, frankly, do not have mechanisms to enforce them if they have. So because of this, my colleagues, Representative Albio Sires, Mr. Richard Hanna from this committee, Steve Southerland and I have introduced H.R. 2069, the Safe Building Code Incentive Act. It provides financial incentives for States to voluntarily adopt and enforce the model building codes, for the construction of new commercial and residential properties.

This legislation, frankly, Mr. Chairman, just simply rewards good behavior. It rewards States that have those building codes and that enforces those building codes and provides incentives to do so for the States that have not done so. It is important to note, however, that this bill does not place mandates on States that do not currently or do not enforce statewide building codes.

Mr. Chairman, next month is the 20th anniversary of Hurricane Andrew. That was a turning point for many of us in south Florida. It killed dozens. It was $26.5 billion in damage. In those days it is hard to believe, but in south Florida what we thought about when a hurricane was coming is we would tape our windows. We would put tape on the windows and we thought that would solve the problem.

Well, we learned the hard way. After that, Florida became a leader in building codes, and because of that, research conducted by the Insurance Institute of Business and Home Safety, because of Florida's building codes, it reduced the severity of property damage resulting from Hurricane Charlie in 2004 by more than 40 percent, 40 percent. And so think of what that means in money and also in disruption of people's lives and potentially saving people's lives.

So the evidence is clear, Mr. Chairman. Building codes work. It is vital that we seize this opportunity to encourage States to adopt their building codes in a manner that will save lives, that will protect property, and ultimately also reduce taxpayers' exposure to natural disasters.

I want to thank the BuildStrong Coalition for their advocacy on this important issue. They have been an incredible partner in promoting the needs for stronger building codes.

And with that, Mr. Chairman, I want to thank you, sir, for your leadership, for this committee's leadership. This is a commonsense issue. We, I think, have a good piece of legislation that would go a long way.

With that I yield back.

Mr. DENHAM. Thank you for your testimony, Mr. Diaz-Balart.

Mr. Miller, you proceed.

Mr. MILLER. Good morning, Chairman Denham, Ranking Member Norton, and distinguished members of the committee. My name is David Miller, and I am the associate administrator of the Fed-

eral Insurance and Mitigation Administration for the Federal Emergency Management Agency.

In my testimony I will share an overview of FEMA's role in building codes and discuss current programs and initiatives used by the Agency to encourage mitigation efforts. Mitigation is the thread that permeates emergency management and links together preparedness response and recovery to reduce the loss of lives and damage to property resulting from disasters. Mitigation is about building stronger and more resilient communities.

Mitigation efforts like building codes, flood-proofing requirements and earthquake design standards support rapid recovery from disasters and lessen the financial impact of disasters on the Nation. To achieve FIMA's vision of a Nation committed to a disaster resilient and sustainable future, we engage and partner with a broad spectrum of whole community stakeholders that include Federal, State, tribal, territorial, local, nonprofit and private sector organizations.

FEMA works side by side with organizations like the International Code Council to support development of the International Codes, I-Codes, a family of building and fire safety codes which provide a complete set of coordinated, comprehensive and contemporary building and fire safety standards available for adoption by jurisdictions.

Over the past 30 years, FEMA has worked with stakeholders from across the whole community to propose and gain adoption of numerous disaster-resistant provisions for earthquake, wind, and flood hazards in the Nation's model codes and standards. The Agency has championed hundreds of provisions now published by the American Society of Civil Engineers in their publication "Flood Resistant Design and Construction," which serves as the core reference standard for the International Building Code flood provisions.

FEMA's role in building codes is likely to evolve given the recent passage of the Biggert-Waters Flood Insurance Reform Act of 2012, which directs the Agency to conduct a study and submit a report to Congress regarding the impact, effectiveness and feasibility of amending sections of the National Flood Insurance Act of 1968, to include widely used and nationally recognized building codes as part of the flood plain management criteria in that section of the Act.

FEMA helps thousands of communities and tens of thousands of individuals avoid the suffering and economic loss associated with disaster damage through mitigation efforts like strong building codes and grants to strengthen the build environment. We encourage construction of safe rooms through grant programs such as the Hazard Mitigation Grant Program, and since 1999, have helped fund 1,334 community safe rooms in 20 States. This includes 235 safe rooms in 2011, a nearly 90-percent increase from the 124 rooms constructed with FEMA funding during 2010.

According to a 2005 report by the Multihazard Mitigation Council, a public-private partnership designed to reduce the economic and social costs of natural hazards, FEMA grants disbursed between 1993 and 2003 to mitigate the effects of floods, hurricanes,

tornadoes, and earthquakes are expected to save more than 220 lives and almost 4,700 injuries over approximately 50 years.

Mitigation programs save the American public an estimated $3.4 billion annually through a strategic approach to natural hazard risk management. In 2011, FEMA's Hazard Mitigation Assistance (HMA) Programs helped local communities across the United States prepare for future disasters by providing up to $252 million in flood grant funds for mitigation activities affecting more than 1,300 properties. These measures are expected to result in potential losses avoided of approximately $502 million for flood programs.

FEMA's HMA Programs are one way FEMA supports mitigation through a whole community approach. We are also working to implement Presidential Policy Directive 8, which aims to strengthen the security and resilience of the United States through systemic preparation for threats that pose the greatest risk to the security of the Nation. As part of PPD–8, FEMA and its interagency partners are developing the National Mitigation Framework and its companion, Federal Interagency Operation Plan, which support efforts to create a nationwide, holistic, integrated model for mitigation.

In an effort to support development of building codes and engage State and local partners, FEMA has collaborated nationally to bring attention to the importance of the codes through a number of activities, including a Presidential proclamation declaring the month of May as National Building Safety Month in both 2011 and 2012; publishing articles highlighting the importance of disaster resistant building codes in technical journals and magazines; blog posts and postings on the FEMA Web site; and the creation of a Building Codes 101 toolkit for communities to use to adopt and enforce effective building codes.

FEMA also uses a variety of programs to reach members of the whole community, including Risk Mapping, Assessment, and Planning, our Risk MAP Program, which strengthens State, tribal, territorial and local government capability by providing actionable risk information, mitigation planning tools, and risk communication outreach support. Risk MAP is the intelligence function that helps us better inform and reduce risk, and it's critical to our toolkit.

FEMA coordinates with communities to use data identified through the Risk MAP processes to inform communities and citizens about their risk so they can take effective actions to reduce their risk. As you are aware, the Disaster Mitigation Act of 2000, as written by the committee, requires the development of State-approved hazard mitigation plans to pre-identify projects for execution once funding becomes available through the post-disaster Hazard Mitigation Grant Program.

The programs and initiatives I described here today help FEMA help our Nation to save lives and property through mitigation. Adoption and enforcement of effective building codes in local ordinances can further mitigation efforts and preserve lives and property that would otherwise be lost.

Thank you, Mr. Chairman, for providing me this opportunity to appear before you today. I look forward to answering any questions you or other members of the committee may have.

Mr. DENHAM. Mr. Diaz-Balart, in your testimony you highlight some of the issues that you saw with Hurricane Andrew. I remember very vividly after returning home from Desert Storm that was one of our deployments, was to send help from California. I know how devastating that was for your State.

Can you describe the process Florida went through in evaluating the need for building codes and the work that you have done on this issue?

Mr. DIAZ-BALART. Thank you, Mr. Chairman.

Actually I was involved in the statewide building code effort when I was in the State legislature, and I will tell you that it was a heavy lift. There were some that because they had not gotten hit by a hurricane in recent years just said they did not want to do that. However, we succeeded, and I worked on that.

We succeeded in first having a very strong building code in south Florida and southeast Florida. Then we were able to get the State to pretty much do the same thing.

I will tell you, by the way, a little anecdote about that. There was a wonderful member of the Florida Senate who, frankly, I was working with in trying to get a statewide building code, and he refused to have his part of the State be part of it because he said that it was not necessary. They had not gotten hit by a storm in, you know, 100 years or whatever.

So we exempted that part of the State, frankly. So we had a statewide building code with a gap.

Well, then we had that year, I think, five hurricanes that hit the State of Florida. The legislature right after that closed that gap, and now we have one of the strongest building codes in the entire country.

So it is a heavy lift, but I will tell you, as I think Congressman Billy Long said it very well, better than I could: Look. These things are going to happen, and the question is are we ready beforehand. Can we take some commonsense measures to avoid loss of life, loss of property damage, and also to save taxpayer money?

Yes, we can, and this is one of those. I think the legislation that a number of us have is a commonsense approach because it is not punitive to the States. It encourages the States to do so. So that is one way to do that.

Now, is it a heavy lift in some cases? Yes. That changes as soon as they get hit by a flood or a fire or a tornado. All of a sudden, the States realize that they can do better.

Mr. DENHAM. And from your personal experience, do you have examples of homes or buildings that are compliant versus maybe in the same area or in different parts of the State where you did not have compliant homes, the differences in the damage and the assessment after the fact?

Mr. DIAZ-BALART. Sure. Actually the Insurance Institute has a facility where they test different buildings. Florida International University has a similar facility, what they call the Wall of Wind, I believe, where they test different facilities and different mitigations to see what works and what does not work.

But we saw that very clearly in south Florida after Hurricane Andrew, and we have seen it after other storms. Those buildings, whether it is residential or commercial, that were built under higher standards, frankly, withstand the damage, and those that are not, well, they disappear.

And so they rebuild. They have to be rebuilt. It costs insurers. It costs the taxpayers. It costs everyone a lot more money. So, look, this saves money and it saves lives in the long term.

And what we do know is that every time one of these things happen, Congress gets together and we will then do a bill to make sure that we can fund whatever we need to fund to try to get those communities back and running. Does it not make sense if that is going to happen that we at least encourage those States to have stronger building codes so that we do not have to do that time after time after time? It is throwing good money after bad or bad money after good, however you want to call it.

Yes, we have seen it in south Florida. It works. It has made a huge difference, and it is part of my statement today that after a recent storm, after looking at that, we were told that the stronger building codes reduced the damage by 40 percent. That just pays for itself right there, Mr. Chairman.

Mr. DENHAM. Thank you.

Ms. Norton.

Ms. NORTON. Thank you, Mr. Diaz-Balart, for returning to this subcommittee about your bill. I liked the way your bill was framed. That is why I was a co-sponsor, because it does seem to me that particularly in light of federalism, if the Federal Government wants you to do something, you offer incentives, as I recall. You get more hazard mitigation funds if you did a building code.

I understand that there was a score on it. Somehow the CBO does not get it, this extraordinary saving, three to four dollars for every dollar invested. Is there a way to somehow enact your bill?

I would hate to take the incentive out, but you and I know what happens when a bill gets scored. Is there some way to move your bill through the CBO scoring process so that it does not get stopped dead in its tracks, despite all of the information that has been collected. I mean, it is just the way scoring works.

So have you considered another way to get our bill passed or to the floor?

Mr. DIAZ-BALART. Thank you. We understand why CBO has scored it the way they do. They do static scoring. They do not look at the savings. They look at what potentially more money could go out.

Now, you know, all of this is subject to appropriations anyway, obviously, like most things. We are looking at ways that we can try to, again use the word "mitigate" that scoring; the problem being, however, that we do need to have an incentive for States to do so, and we are always looking at ways of doing that.

Again, we understand the scoring problem, but the issue is this: We have actual evidence that this saves money. It actually saves money, but the ranking member knows and I know the frustration that she has had over the years with issues of leasing versus buying properties and how that is scored, and we know that that is, frankly, also a static score.

We have to deal with that reality. We are looking at ways to do that. We have not yet come up with a good answer for that.

Ms. NORTON. Well, I think it is worth our trying to think of a way. If not incentives, I do not know. If we said you would not get any hazard mitigation funds if you did not do it, I guess that would not score. That is pretty draconian. Instead your bill is framed as a win-win, and we need a score.

I do not know what to do about it, but I very much think it is worth thinking through, and I certainly would like to work with you to.

Mr. DIAZ-BALART. If I may, you know, it is interesting. If we were to do that obviously, you know, we would read about it.

Ms. NORTON. Yes.

Mr. DIAZ-BALART. However, you are right. It would score then with huge savings, and we all know that that would not happen; that after a storm, Congress would get together and we, of course, would fund that, which I think highlights how sometimes the scoring issue can be very frustrating.

Ms. NORTON. Mr. Miller, I had a question about this National Mitigation Framework because we have been sitting in the committee talking about this framework for almost 10 years, and when we passed the Homeland Security Act, there is a section in there that calls for strategies, mitigation strategies.

Then in 2005, we had this extraordinary result. Congress mandated the study. We have the extraordinary results, and now we are 10 years later, and you are speaking about a National Mitigation Framework. I mean, it looks to me as though this has been 10 years in the development. So I have to ask you when will we have a framework.

Mr. MILLER. Well, ma'am, the framework is not in development, but is going through the final concurrence processes now. We hope to have it out in the next few days and be able to publish that.

But I think as importantly as the framework itself, and getting that published after it goes through the concurrence process, is the Federal Interagency Operational Plan. We are putting that together now.

The approach that we are taking is to look at a "mitigation all the time" strategy instead of just after disasters, and look at the role all of Government can play along with our other partners in taking effective mitigation action. So it is not just a single focuse on the largest disaster. It is not just the flood focus we have seen in the past. We really want to broaden that, talk about the role all Government can play, not just the——

Ms. NORTON. Well, your testimony is that your National Mitigation Framework is about to be published.

Mr. MILLER. Yes, ma'am.

Ms. NORTON. In addition, you are calling on other agencies. What agencies? What kinds of agencies' help would FEMA elicit?

Mr. MILLER. Well, ma'am, we go across the broad Federal spectrum. When we look at mitigation activities and we really look at it writ large, all of the things that are possible, we involve agencies like USDA, the Department of Transportation, the Department of the Interior, Housing and Urban Development, Public Health. There are a number of mitigative actions that can be taken both

in their current authorities as they exist and then what comes to play during a disaster declaration.

Mr. DENHAM. Thank you.

Mr. Crawford.

Mr. CRAWFORD. Thank you, Mr. Chairman.

I have got a question for Mr. Miller. From your personal experience at FEMA and previously in Iowa, could you share some examples of some specific cases in which building codes made a difference in terms of lives saved and damages reduced?

Mr. MILLER. I think there are any number of those. As we walk through it, in my own experience in Iowa, we looked at building code and building code enforcement. It is sporadic in Iowa. There is not a statewide building code enforcement. The various communities have adopted building codes but do not have a statewide enforcement.

But as we looked at those that have done that, have built to that environment, and we looked at wind damage, we looked at damages from floodings; we have seen the benefits of that code and code enforcement. As far as specific lives saved, that I cannot talk to, but again, we look at the forensics of it.

In FEMA, one of the things that interests me is that we actually go out with a mitigation assistance team to go out and look at the forensics and the performance of buildings after a disaster to see how well they perform. And the truth is that those that have been built to code perform much better than those that have not.

So not only do we have the testing facility that Congressman Diaz-Balart talked about, but we actually have forensic testimony that tells us buildings have performed and performed well, especially those that are built to code.

Mr. CRAWFORD. Do you think that this bill would reduce Federal disaster costs and actually save taxpayer dollars?

Mr. MILLER. I do. I think time and time again as we go through this and, again, look at the forensics and the proof before us, look at the testing that is done, the testimony of others, we see time and again that the adoption of building codes and the enforcement of building codes is a good value statement to our communities. It makes them more resilient. It saves lives, and it protects property and people.

Mr. CRAWFORD. Thank you, Mr. Miller.

The last question to Congressman Diaz-Balart.

Just to be clear, and if I am repeating myself forgive me, does the Safe Building Code Incentive Act place mandates on States?

Mr. DIAZ-BALART. It does not. It gives incentives to the States.

Mr. CRAWFORD. Thank you. Thank you, sir.

Mr. DIAZ-BALART. And that is one of the issues that we have with the scoring, but yes, I think I am one of those who does not like mandating things to the State. So this is a different approach to that.

Mr. CRAWFORD. I appreciate it. Thank you.

I yield back.

Mr. DENHAM. Mr. Rahall.

Mr. RAHALL. Thank you, Mr. Chairman.

Administrator Miller, let me begin by highly complimenting you and FEMA for the manner in which you have responded to our cri-

ses in West Virginia, not only the recent storm, but many in the past. You know, you have been in our State. You have partnered with our State after numerous storms, been there within days after a disaster has hit, and many in the past have grateful words of praise for FEMA. Many parents sometimes say they want to have the nickname of FEMA for their newborn child that has been born out of the storm. So we do compliment you and thank you for all that assistance.

You heard my opening comments, and I was on the ground after this recent disaster, as I am after every one that occurs, personally experiencing with each family the damages and the turmoil through which they are traveling.

This latest one in which we had such severe power outages does not fit the classical definition of traditional sources of damage like a food would. A flood destroys one's home. You have figures immediately you can put on the value of that home. When you have power outages, as you know, it is a little different. You have families that have to go to hotels in order to maintain their dialysis machine to keep their medical supply going, and oftentimes these families are in the middle class. They have no other form of assistance available. Their income is above a certain level, and they are certainly not in the upper class. So they are in that middle class where they often fall through the crack as far as receiving help that they need after such a disaster.

We thank you for what you have declared just yesterday in providing public assistance to our communities. That will help a great deal, and my question is headed toward the individual assistance that we now need. Even though we may not fit the traditional criteria or figures for such an individual disaster declaration, will you give that same sense of urgency to this individual request that our Governor and you will hear from our Homeland Security Director in a few moments, when all of the figures will be before you?

But will you give that the same sense of urgency that you have, and we thank you for, the Community Assistance Declaration?

Mr. MILLER. I believe we will, sir. I have not talked to Administrator Fugate about this issue, but knowing his feelings about how we respond to and how we help the survivors of disasters, I am sure it will receive our full consideration as we move it forward.

You know, it is the part that we look at. It is one thing to affect communities, but how it affects individuals I know weighs on his mind considerably, and he will give it the fullest consideration.

Mr. RAHALL. I appreciate that because, as I said, you know, you sometimes have to look beyond the cold, hard figures as to what the suffering was really all about.

While it is up to each State, of course, to prepare and submit a hazard mitigation plan to address such State hazards, what type of outreach does FEMA do to distribute best practices to the States?

Mr. MILLER. Actually, we do it in a number of areas, and we are looking at broadening that dialogue. When I spoke in my testimony of Risk MAP, the first thing that we really want to do is enter a dialogue with the community about risk. Risk MAP is based primarily on flooding, but it is not the only dialogue we want to have.

We have talked about how we brought in other sectors of FEMA to talk about overall risk. One of the things that is going to drive the process as we issue our grants and as we do mapping is what we call THIRA, the threats and hazards identification and risk assessment, that will happen.

It is another opportunity to have a conversation about the total risk facing a community and what they can do to buy down that risk either by effective building codes or by taking other measures in their community. We think there is some real opportunity there, and we look forward to engaging the whole community.

I think in the past we have focused oftentimes on talking to emergency managers and not talking to everybody in the community. I think the real effort here will be to talk about it in terms of the value to the community of taking effective measures before the disaster to enforce codes and standards that will help them mitigate against the next event. That has a benefit over a broad array, not just the direct benefit about avoiding disaster loss.

Mr. RAHALL. Thank you.

Mr. Hanna.

Mr. HANNA. Thank you, Chairman.

Currently there is 15 percent allowance for mitigation. We are going to raise it to 19 percent. The Government is full of incentive plans for hiring people, filling any number of things that look good on paper and work well in our imaginations, but what specifically makes anybody think, and I am on board for this incidentally; what tools do we have to make us believe that municipalities and State governments after they have done their cost-benefit analysis will actually pull that lever to direct this money towards building codes as opposed to other things?

So the question is: did they do it very well at 15 percent and will 19 percent increase that in your opinion? And generally do States look at changes in their codes as a way to use mitigation money?

Anybody.

Mr. MILLER. From my experience they do, and they are looking for the incentives to allow them to move forward. As you stated in the Hazard Mitigation Plan, we offer 15 percent for those that have a plan in force. We offer 20 percent to those who have an enhanced plan, and there are a handful of States that have enhanced plans.

But I think as we move forward in communities and we look at that 4 percent adjustment and an incentive, anything that allows us to move to building codes, I think those that have lived in the margins and question the values of building codes, perhaps this will push them over the edge.

We have done the other efforts. We have done the community outreach, the things that that we need to do. We have worked with the code councils. We have talked to a number of groups about the performance of building codes, and right now I think we are at about 51 percent of the communities that have building codes.

What I do not know is the level of enforcement, the energy by which they enforce those codes across the United States, but we do know they perform and they perform well. I think an incentive that allows them to move forward is certainly something that States would entertain and need, especially in these tough economic times. To tip that edge.

Mr. HANNA. Do you feel as though you may need it within the context of this bill a way to formalize that incentive?

I think part of it is the discussion, and I will defer a little bit to the States. I know they are on your panel today, on what tips them and moves over the edge. I have some experience in our own State. I know part of the question is the cost of compliance and moving forward and what it does to the overall economic stability of an area and how they develop and compete.

But I think, again, for us it becomes the value judgment. As far as implementing it, should the law pass, I think that is a fairly straightforward implementation for us, much like we do the other incentives in the bill, including the enhanced planning status.

I think the question is, as I recall, the bill asked for those codes to be submitted to the State. We would have to work with the code and other committees to insure that it is the newest, up-to-date code. There are some things that we would have to do to administer the program within FEMA.

Mr. HANNA. And you think 4 percent is a reasonable place to go with this?

Mr. MILLER. I would not question that, sir. I mean, we have not done an effective study to say what the real incentive should be and what the tipping point is. You know, we will have some costs for administration, but again, I think moving in a direction that allows us to move building codes forward is the right direction.

Mr. HANNA. Have you seen some marginal changes in behavior before as the incentives changed?

Mr. MILLER. We have, but with incentives a lot of times comes requirement, and I think there needs to be some balance there. I do not know that we will know the full effect of that until we try it out.

I will give you the for-instance. As we looked at it in enhanced States, and we talked about the 5-percent increase between 15 and 20 percent for States that have an enhanced plan, frankly, we have held, I think, in about 10 States that incentive for a long time. It is a fairly arduous requirement on States to have an enhanced plan and to administer that.

So as we look at these things and at incentives, the question will be relative to building codes how arduous are they; what is our implementation; what is the cost of compliance; how do we move forward. Again, the general feeling is incentives work, but to the degree that they will work, I am sure all of these questions will have to be answered.

Mr. HANNA. My time has expired. Thank you.

Mr. DENHAM. I would like to thank this first panel for your testimony today, and specifically Representative Diaz-Balart for your efforts not only on the State level but the fact that you are able to save your State money and save lives. But now certainly with your bill here being able to stretch our FEMA dollar and save lives from a national perspective is something that you should be commended for.

So thank you for your efforts and thank you for your testimony today.

And if our second panel would take the witness stand here, today's witnesses include Mr. Jim Mullen, president, National Emer-

gency Management Association; Mr. Jimmy Gianato, director of homeland security and emergency management, State of West Virginia; Chief Hank C. Clemmensen, first vice president, International Association of Fire Chiefs; Mr. Chad Berginnis, executive director, Association of State Floodplain Managers; Ms. Julie Rochman, president and CEO, Insurance Institute for Business and Home Safety; and Mr. Rod Matthews, CPCU, P&C operations vice president, State Farm Insurance Companies.

I would like to welcome our witnesses here with us today. I ask unanimous consent that our witnesses' full statements be included in the record.

Without objection so ordered.

Since your written testimony has been made part of the record, the subcommittee would request that you limit your testimony to 5 minutes.

Mr. Mullen, you may proceed. If you could, pull your microphone a little closer to you and push the on button.

TESTIMONY OF JIM MULLEN, PRESIDENT, NATIONAL EMERGENCY MANAGEMENT ASSOCIATION; JAMES J. GIANATO, DIRECTOR OF HOMELAND SECURITY AND EMERGENCY MANAGEMENT, STATE OF WEST VIRGINIA; CHIEF HANK C. CLEMMENSEN, FIRST VICE PRESIDENT, INTERNATIONAL ASSOCIATION OF FIRE CHIEFS; CHAD BERGINNIS, CFM, EXECUTIVE DIRECTOR, ASSOCIATION OF STATE FLOODPLAIN MANAGERS; JULIE A. ROCHMAN, PRESIDENT AND CEO, INSURANCE INSTITUTE FOR BUSINESS AND HOME SAFETY (IBHS); AND ROD MATTHEWS, CPCU, P&C OPERATIONS VICE PRESIDENT, STATE FARM INSURANCE COMPANIES, TESTIFYING ON BEHALF OF THE BUILDSTRONG COALITION

Mr. MULLEN. Good morning, Chairman, Ranking Member Norton, and distinguished members of the subcommittee, my name is Jim Mullen, and I am the director of Washington State Emergency Management Division. Thank you for the opportunity to present testimony today as the president of the National Emergency Management Association.

NEMA represents State Emergency Management Director of the 50 States, District of Columbia, and the U.S. territories.

Few professions lend themselves to sports metaphors like the emergency management does. One that I think is particularly appropriate is offense wins games, defense wins championships. In our case, response and recovery addresses short-term goals following a disaster, but mitigation, like defense, is critical to winning in the long-term battle for disaster resistant communities.

The emergency management community plays a large role in communicating the message of mitigation, and what is that message? We mitigate so that preparedness is based on the best assessment of threats and hazards. We prepare because we cannot mitigate every threat, and we respond because mitigation and preparedness cannot completely eliminate risk, and we recover because it is important that we return to what our new normal has become.

In the wake of a disaster we then resume mitigation efforts all over again. The cycle of emergency management begins and ends with mitigation.

At its core, mitigation is easy to justify, and it seems like common sense. In practice, however, challenges still exist. The current funding structure for mitigation limits full integration and implementation of a National Mitigation Strategy.

FEMA has mitigation assistance grant programs to provide funding for pre and post disaster mitigation. While funding levels for the other HMA grants are set, Hazard Mitigation Grant Program funds are only available to jurisdictions that experience a major disaster declaration and levels are determined as a percentage of their overall Federal assistance.

In examining funding history over the past 10 years, it becomes evident that HMGP funding far outweighs investment in the four other programs. It cannot be overstated how crucial mitigation is post disaster to address critical points of failure, but instead of capitalizing on the 1 to 3 ratio of dollars invested to dollars saved on recovery costs, the Federal Government is missing the opportunity to focus money on the frontend instead of on the backend.

Lack of effective communication is also a barrier to mitigation. For example, the private sector makes mitigation decisions all the time, but they do not always call it mitigation. Businesses take actions to invest in long-term profitability and eliminate or lessen future losses. Mitigation makes good business sense, and the private sector is able to communicate their motives to corporate and community stakeholders.

In order to achieve the goals of mitigation as a national strategy, there are actions that must be taken. First, we must imbed mitigation and policy development as broadly as possible. Risk reduction policies and specific hazard mitigation measures are not the sole domain of any single agency, discipline, or profession. Policymakers in many domains could advance the reduction of risk in ways outside their traditional scope of responsibility.

Secondly, we must educate Federal, State and local officials. Local elected and appointed officials make tough decisions and weigh costs versus benefits every day to make wise policy decisions where mitigation investments are concerned. They deserve to be educated about the threats, risks, benefits, and costs as fully as possible.

Third, we should emphasize incentive, not punitive mitigation policies. Mitigation can be encouraged and rewarded or it can be mandated with punishment for the noncompliant.

Policymakers should consider funding programs designed to reward effective land use and building design actions, including building codes and ordinances, and flexibility is needed to realize that one size does not fit all.

And, lastly, there should be a focus on measuring and capturing success, along with some enhanced ability to measure the effectiveness of mitigation. Strategies that publicize those successes must also be developed, exploring ways to measure the long-term benefits of mitigation on tourism, the environment and economy, and enhance the attractiveness of mitigation efforts.

In order to encourage investment and promote the goals of mitigation activities on the State and local level, specific recommendations should be considered. Better coordination is needed between Federal agencies with roles in mitigation. No single agency or level of Government sector of business or individual community can achieve successful mitigation on its own. Mitigation must be connected to other programs. Mitigation objectives for specific projects can differ among individuals, but if the same project supports multiple desired outcomes, success and achievement are increased.

To support a National Mitigation Strategy, we must rethink the Federal grant structure. The current mitigation structure is centered on the Federal Government. Local governments and communities must find a way to illustrate their commitment to mitigation and demand partnerships to leverage their investment.

The funding that comes down from the Federal Government must supplement, not supplant the work already being done at the State and local level. The path to successful implementation of a national strategy is filled with challenges, but there are numerous opportunities for effective collaboration between all mitigation stakeholders.

NEMA and our partners remain committed to advancing the message of mitigation and furthering the core goals of risk reduction and loss avoidance.

Thank you for the opportunity to testify, and I look forward to answering your questions.

Mr. GIANATO. Good morning, Chairman Denham, Congresswoman Norton, distinguished members of the committee. Thank you for the opportunity to appear before before you today on behalf of the citizens of West Virginia and all Americans that were so affected by this devastating storm known as the derecho.

I have been the director of homeland security and emergency management in the State of West Virginia since 2005 and previously served for 22 years as a local county and State official dealing with numerous disasters. I can honestly report to you that I have never witnessed anything of this magnitude with the impact it had on our State. The widespread devastation the storm produced in West Virginia was without precedent.

The June 29th derecho was one of the most destructive, fast moving severe thunder storms in North American history. The massive storm brought straight line winds of over 100 miles per hour and traveled close to 700 miles in just 10 hours. It devastated 10 States, left over 4 million homes and businesses without electricity, and resulted in the deaths of at least 22 people.

In West Virginia we realized almost immediately that the damage would be particularly heavy. Before 10:00 p.m. on June 29th, 2012, Governor Tomblin had already declared a state of emergency for the entire State of West Virginia. I had activated the State Emergency Operations Center and Adjutant General Hoyer had activated the West Virginia National Guard's Joint Operations Center and the first complement of our soldiers and airmen.

For West Virginia the major impact from the storm was the loss of electrical power, which at its peak included almost 700,000 customers or roughly 1.6 million citizens. The power outages result in as many as 87 public community water systems going offline, as

well as hundreds of families depending on privately owned water wells without power to run their pumps, leaving tens of thousands of mountaineers without water.

The suffering from this lack of power and water was compounded by the record heat wave that swept the country during this outage period. With high humidity and a heat index touching 110 degrees, our most vulnerable populations were particularly at risk.

The lack of power impacted much more than the comfort of an air conditioner. With most gas stations inoperable, the few that had power saw lines of over 2 hours long. Grocery stores lost the ability to keep perishable foods and lost most business for over a week.

Pharmacies were unable to dispense badly needed medications. Cell phone towers became inoperative, and at least 50 percent of the State's hospitals were on generator power.

Immediately we set to coordinate one of the largest response efforts in West Virginia history. Governor Tomblin took swift action in activating the State Emergency Operations Plan and requested Federal assistance as soon as the magnitude of the storm was realized. Hundreds of State employees from almost every State agency reported for duty ready to assist their fellow citizens. At least 50 percent of our Division of Highways' support was solely dedicated to disaster response, clearing 1,846 roads and delivering fuel to all of our counties.

Our Department of Health and Human Resources activated its Health Command Center to assist at one time during the storm up to 50 percent of the hospitals reporting on generator power. Thirty-eight long-term health care facilities were on backup power. Seventy-nine percent of the community water systems in the State were impacted by the storm, and at least 146 used generators in one or more water plants.

Another major issue encountered during the event was the lack of our ability to acquire oxygen for patients who used concentrators. Lack of power caused them to switch to bottled oxygen, which was in short supply, and local home health providers were unable to meet the demand.

FEMA also assisted us in acquiring additional oxygen. I have attached copies of the DHHR report to my written testimony, but as with many agencies, they are still gathering data related to this event.

The FEMA response to this disaster was immediate. From the time the Governor made the request to FEMA at about 3:00 in the morning, relief supplies and personnel began arriving within 6 hours. Throughout the duration of the event, FEMA personnel were extremely helpful and responsive to our needs.

To give you an idea of the supplies provided, almost 2.6 million liters of water were provided by FEMA, over 669,000 meals, 97 generators and 20 infant kits.

The West Virginia Emergency Operations Center focused its immediate response on identifying initial impacts and to trying to determine what needs will be required. Even with the large volume of communications not functioning, our statewide Public Safety Radio Network provided us a solid and reliable communications backbone.

By Saturday, June 30th, the next day of the storm, we knew that 53 of our 55 counties had been impacted. Among the most impressive response efforts came from our citizen soldiers and airmen of the West Virginia National Guard. Over 700 Guardsmen disbursed throughout the State to provide life sustaining supplies and even door-to-door checks.

The support from the private sector was tremendous. Our interaction with agencies, such as the West Virginia Oil Marketers and Grocers Association, were a tremendous support system for our State. This was just one example of the private sector stepping up to assist.

I appreciate the opportunity to share with you some of what we have done in West Virginia to deal with this event. I have submitted written testimony to you, and I will be glad to answer any questions at the end.

Again, thank you for the opportunity to be here today.

Mr. DENHAM. Thank you.

Chief Clemmensen.

Chief CLEMMENSEN. Good morning, Chairman Denham, Ranking Member Norton and members of the subcommittee. I am Chief Hank Clemmensen of the Palatine Rural Fire Protection District located in Inverness, Illinois, and the first vice president of the International Association of Fire Chiefs.

I want to thank the committee for this opportunity to represent the fire and emergency service's support for building codes and effective hazard mitigation.

America suffers from one of the worst fire problems in the civilized world. In 2010, there were more than 1.3 million fires in America which resulted in the deaths of more than 3,100 Americans and more than 17,000 injuries.

The economic cost of these fires is equally compelling. For example, the economic loss due to fires in 2009 was $16.1 billion. The total cost for fire that year, including insurance costs and local fire department expenditures, was $331 billion. This amount represents approximately 2.3 percent of the national gross domestic product.

Model building codes and fire codes play a key role in mitigating the damage done by fires, windstorms, earthquakes and other disasters. They are designed using a consensus-driven process that includes all of the stakeholders. The fire service participates in the development of these codes to ensure that modern construction is safe for the public and first responders.

There is strong evidence that building and fire codes prevent the tragic loss caused by extreme weather and national disasters. For example, a 2009 World Bank report demonstrated that the strict adherence to tough zoning and building codes resulted in greatly reduced fatalities in California as compared to earthquakes in other countries. A 2012 report by the IBHS found that the adoption of high wind provisions in residential buildings reduced the frequency of claims after a hurricane by 60 percent and the severity of such claims by 42 percent.

Unfortunately, some jurisdictions do not adopt model building codes or update them until after a natural disaster occurs. In Illinois, there was a greater focus on adopting sprinkler codes for schools after the Our Lady of Angels fire in 1958. Sadly, more than

90 students and teachers perished in that fire before sprinkler codes were changed.

The IAFC believes that H.R. 2069 will encourage States to adopt the most current commercial and residential building codes proactively. By adding a 4-percent incentive to FEMA's Hazard Mitigation Grant Program, the bill will create a virtuous cycle for States to receive more funds to protect their citizens.

As the subcommittee begins to consider this legislation, we would like to raise three points for your consideration: (1) To qualify for the 4-percent incentive, States should not be able to opt out of or reduce substantial code requirements. For example, the 2009 edition of the International Residential Code included a requirement for residential sprinklers. Many States opted out of this requirement when adopting the code.

The IAFC is greatly concerned about this decision since there is clear evidence that fire sprinklers save lives.

A report by Scottsdale, Arizona, found that one or two sprinkler heads controlled or extinguished the fire 92 percent of the time. Because of their proven efficiency, the U.S. Fire Administration recommends the installation of fire sprinklers in residences.

The decision to opt out of residential fire sprinkler requirements presents a serious problem for public safety. Sixty-six percent of all civilian fire injuries from 2008 to 2010 resulted from fires in residential buildings. So, the decision to opt out of the residential sprinkler requirements will do nothing to mitigate two-thirds of the casualties caused by fires.

(2) Local jurisdictions should be allowed the latitude to adopt more stringent codes than the State minimum code requires. Especially in large States, the various regions in a State may face different threats. For example, the wind resistance requirements for buildings in south Florida and the Panhandle vary due to the threat of hurricanes. When implementing H.R. 2069, local jurisdictions should be allowed to strengthen their requirements to address all hazards.

(3) The legislation should also include both building codes and fire codes. Both building codes and fire codes work together in tandem. In many communities a building code addresses design and construction of a building while the fire codes address specific life safety hazards associated with the facility's use. The adoption of both building codes and fire codes at the State level will ensure that there is a minimum level of fire protection in local communities across the Nation.

Finally, on behalf of the America's fire and EMS chiefs, I would like to thank you for holding today's hearing. Model building and fire codes play an important role in mitigating the effects of fire and other natural disasters. H.R. 2069 proposes an incentive that will improve the safety of the American public and first responders.

We urge Congress to consider this legislation and look forward to working with the subcommittee.

Thank you very much.

Mr. DENHAM. Thank you.

Mr. Berginnis.

Mr. BERGINNIS. Good morning, Chairman Denham, Ranking Member Norton, and distinguished members of the subcommittee.

I am Chad Berginnis, executive director of the Association of State Floodplain Managers. We are pleased to offer our thoughts related to hazard mitigation and building codes.

ASFPM's 14,000 members and 33 chapters are the country's practitioners who administer flood hazard mitigation programs, land use and building codes on a daily basis.

2011 was a record-setting year in the United States. Data indicated that 2011 resulted in at least $10 billion in flood damages. The Nation experienced 14 disasters from natural hazards where the cost of each exceeded $1 billion, and President Obama issued a record 99 major disaster declarations.

As the cost of disasters continues to rise, Governments and citizens must find ways to reduce cost from natural hazards. Hazard mitigation means taking a sustainable action to reduce or eliminate long-term risks from hazards and their effects. There is a variety of mitigation tools though, including planning, building codes, land use standards, planning, hazard insurance, mitigation grant programs, protection of critical facilities, infrastructure protection, and high engineered structural measures.

Hazard mitigation also saves money. The 1993, Mississippi River flood affected hundreds of homes and caused several million dollars of damage in the small city of Arnold, Missouri. In 1995, a large number of at-risk homes were bought, demolished, and the remaining property was deed restricted as open space.

By 2008, over 322 homes had been acquired. When flooding occurred that year, a total of $12,000 in damages resulted. Today flooding is mostly an inconvenience in Arnold, and the long-term cost to the U.S. taxpayer is essentially zero.

Mitigation grant projects are an important tool used nationwide, especially in older communities that have existing inventories of at-risk buildings and infrastructure. Demand for these programs far exceeds available resources. A poll of State hazard mitigation officers found that current demand ranges anywhere from 3 to 10 times available funding.

Mitigation practitioners in the Nation though are concerned about the administration's proposed FY 2013 budget to zero out the Pre-disaster Mitigation Program, and ASFPM appreciates Congress' expression of support of that program through restoration of some of those funds. PDM is a significant source of mitigation funds for mitigation planning, and it is not redundant to other sources that may be available after a declared disaster.

In fact, over half of the States depend upon PDM for planning assistance.

ASFPM also thinks that building codes can play an effective role in hazard mitigation, and there are six key considerations for any legislation addressing building codes and mitigations. First, State adoption does not necessarily equal all communities adopting the same code. As the previous panelists had indicated, there is the ability to opt out of codes, and the code adoption process is voluntary and variable.

Many States do not require local jurisdictions to adopt building codes, and others allow communities to adopt a building code of their choice. Ohio serves to illustrate this point well. The States of Ohio adopted international codes. In fact, they are required in all

communities. Those codes are required for three-plus family, residential, commercial and industrial buildings.

However, the Ohio residential code is optional in communities for one to three family dwellings. Furthermore in 2012, when the Ohio residential code was updated, controversial provisions of the International Residential Code were omitted.

Second, State adoption does not necessarily equal enforcement of those codes. Over the past 25 years, FEMA post event reports find that the construction does not meet targeted building code performance. Anecdotally, many local flood plain managers indicate that code enforcement can be difficult. Everything from political pressure, misuse of the variance process, to other inadequate legal counsel can impact a community's ability to enforce its regulations.

Third, model codes are consistent with minimum national standards, but do the standards achieve the needed amount of loss reduction? While flood provisions of the model building codes are consistent with the National Flood Insurance Program standards, minimum standards of the NFIP have not been updated in over 25 years, and much loss experience has been learned.

Are these minimum standards enough? Steps should be taken to encourage or incent States and/or communities with unique hazards or long-term vision to implement standards beyond those in the international codes.

An effective approach must include both incentives and the elimination of perverse disincentives. Today's communities and States get rewarded for doing little or nothing to increase their resiliency. If a community is not willing to do the day-to-day mitigation through codes and land use, why should even they be eligible for programs such as HMGP, public assistance or disaster assistance in general?

Fifth, local capacity is key to successful implementation of building codes.

And finally, effective land use and planning must work in concert with building codes to achieve overall community resiliency.

ASFPM appreciates the committee's interest in and encouraging adoption and enforcement of statewide building codes. H.R. 2069 is a good step in the right direction through offering an incentive for adoption enforcement of nationally recognized building codes.

Thank you.

Mr. DENHAM. Thank you.

Ms. Rochman, and I understand you have a brief video.

Ms. ROCHMAN. We do, yes, sir. We will show it in the middle of the testimony if that is all right.

Mr. DENHAM. Perfect. Thank you.

Ms. ROCHMAN. Members of the subcommittee, thank you for the opportunity to speak with you today regarding the importance of enacting and enforcing strong statewide building codes. Chairman Denham and Ranking Member Norton, thank you for being from jurisdictions with good, strong building codes.

I am Julie Rochman. I am the president and CEO of the Insurance Institute for Business and Home Safety, or IBHS. IBHS is a 501(c)(3) organization wholly supported by the property insurance industry. Our mission is to conduct objective research to identify

and promote effective actions and strengthen homes, businesses and communities against natural disasters and other causes of loss.

We believe that because every region of this country is vulnerable to one or more potentially devastating natural hazard, improving disaster mitigation, preparedness response and recovery must be a national priority.

The centerpiece of our research program is our unique IBHS Research Center in South Carolina. Using a massive 105-fan array, and each of these fans has 350 horsepower, and other specialized equipment, we can recreate a variety of highly realistic wind, rain, fire and hail events. Only IBHS can look at full-scale structures as a system. The ability to mimic Mother Nature in a controlled, repeatable environment allows IBHS to do several things: to demonstrate the effectiveness and financial value of stronger building codes and better built structures; to identify different kinds of solutions to building vulnerabilities; to strengthen the relationship between theoretical and real building performance; and to validate and improve current scientific bases for designing and installing building products and systems.

In addition to laboratory research, IGHS conducts post disaster field research. In one such study following Hurricane Charlie, which has been referenced a few times here today already, we found that homes built to then modern codes suffered 40 percent less severe damage and 60 percent less frequent damage than homes built to older codes.

These are not marginal rates of return on a relative modest investment in codes. These are huge rates of return. Unfortunately, disasters such as Hurricane Andrew have shown that lax code enforcement of otherwise effective building codes needlessly and greatly increases total damage. Strong safety requirements were in place in southeast Florida in 1992, but local officials failed to make sure that they actually were followed during the construction process.

Recognizing the importance of comprehensive building code safety systems, IBHS recently completed a first of its kind Rating the States Report, examining regulations and processes governing residential construction in the 18 States most vulnerable to hurricanes from Texas to Maine. The report looks at adoption, enforcement of strong statewide building codes, as well as code official certification and training, and contractor and subcontractor licensing.

Employing a 100-point scale with 100 being the best, the quality of code systems ranged from Florida and Virginia up at 95 points down to Mississippi which scored only 4 points. The purpose of this analysis was to shine a much needed spotlight on how States can take specific steps to better protect their citizens.

In order to fully understand how real world performance compares to technical requirements, IBHS has conducted several unique, full-scale tests in our laboratory of houses. These tests examine the way structures work as a system either to withstand or to succumb to natural forces.

Mr. Chairman, now I would like to show the subcommittee a quick video. It is about 40 seconds, from one of these tests. This is from the fall of 2010, where we put two full-scale wood frame houses into our test chamber and created a highly realistic storm

with wind speeds and gusts up to 120 miles an hour. In this test, as you can see, the roof of one of the homes built using conventional constructional practices as they exist in central Illinois, where by the way there is no statewide building code, lifted off entirely under the force of 95-mile-an-hour winds. The loss of the roof caused total destruction of the home only moments later.

It is simply inexcusable that we do not ensure that houses in areas subject to moderate and severe high wind events, which is much of this country, do not have strong connections between the walls and the roof, between each floor, and between the walls and the foundation. Most of the roofs in this country are held on by nothing more than gravity.

The strapping needed to provide a continuous chain of connections from roof to foundation costs less than $1,500 to $2,000 for a home or small business, yet greatly increases building strength and safety in the face of a variety of wind events, including hurricanes, tornadoes and straight line wind storms.

Fortunately, there are States like Florida where this chain of connections is an integral part of the building code. A continuous load path should be a feature of residential and commercial construction everywhere and can be through building codes.

Mr. Chairman, thank you for the opportunity to be here today. We urge the subcommittee to advance H.R. 2069. It is important legislation that provides a vehicle to put important knowledge about proven benefits of building codes to work by significantly improving our Nation's safety and resilience.

Mr. DENHAM. Thank you.

Mr. Matthews.

Mr. MATTHEWS. Chairman Denham, Ranking Member Norton, members of the subcommittee, the BuildStrong Coalition thanks you for holding this hearing to examine the vital role that strong building codes can play in mitigating the damage and costs associated with natural disasters.

My name is Rod Matthews, and I am the property and casualty operations vice president for the State Farm Insurance Companies based in Bloomington, Illinois.

State Farm is proud to be a founding member of the BuildStrong Coalition, a group of national business and consumer organizations, insurance companies, firefighters, emergency managers and building professionals dedicated to promoting stronger building codes. The BuildStrong Coalition shares the subcommittee's goal of helping communities to prepare for and recover from natural disasters while saving taxpayer money in the process.

But our fist consideration must always be the safety of our communities and the American people. Our thoughts and prayers go out to the victims of natural disasters, events which compel us to advance legislation to help fortify the Nation's defenses against similar events in the future. Stronger, safer homes and businesses save lives and better protect people's biggest investment.

Not only is the cost of natural disasters measured in the loss of precious lives. It is also measured in the dollar cost to our economy. 2011 was the fifth most expensive year on record for insured catastrophe losses in the United States. Only 50 percent of the almost

$73 billion overall cost of disasters in the United States in 2011 was covered by insurance.

For decades Congress has authorized insufficient funding for disaster relief, and then needed to pass a supplemental disaster funds in 18 of the last 23 budget years.

Natural disasters are inevitable, and while budgeting for disaster cost is not a perfect science, the Federal Government needs to better plan for the financial impact. Merely hoping the weather cooperates and relying on luck is not enough.

There is overwhelming scientific evidence to support the conclusion that minimum statewide building codes save lives and greatly reduce property damage and the subsequent need for Federal disaster aid. The National Institute of Building Sciences found that for every dollar spent to make buildings stronger, the American taxpayer saves $4 in Federal disaster assistance.

The Louisiana State University Hurricane Center estimated that stronger building codes would have reduced wind damage in Louisiana from Katrina by 80 percent, saving $8 billion.

More recently, FEMA assessed the damage from the 2011 spring tornadoes in the Southeast and Midwest, identifying model building codes as the top recommendation to improve public safety. Standardized building codes promote a level and consistent playing field for design professionals, suppliers, and builders, and create a minimum standard upon which consumers can rely.

To alleviate the financial pressure from natural disasters, Congress should encourage building stronger, safer homes and businesses. The BuildStrong Coalition strongly endorses H.R. 2069, the Safe Building Code Incentive Act, as a forward thinking investment to build stronger, safer homes and businesses that will save lives and reduce damage.

Under the proposed law, States that adopt and enforce nationally recognized model building codes for residential and commercial structures would qualify for an additional 4 percent of funding available for post disaster grants, which will be administered by FEMA through the Stafford Act. Currently about 20 States would qualify or could with minor changes to their laws and regulations.

This legislation will not require any additional appropriation to FEMA since it draws funds from the existing Disaster Relief Fund.

Furthermore, H.R. 2069 does not mandate the adoption of statewide building codes by any State that wishes to maintain their current patchwork structure.

Qualifying States have learned the expensive lessons of building code effectiveness usually after an ill-prepared experience with names, such as Andrew, Katrina, Charlie or Northridge. Unfortunately, many States still refuse to adopt these minimum standards in building safety, thereby putting their citizens' lives and property at higher risk and increasing the liability of all U.S. taxpayers.

A 2012 Milliman study found that H.R. 2069 would have saved U.S. taxpayers $11 billion in hurricane relief payments alone from 1988 to present had it been in place. That is almost $500 million a year in taxpayer savings. It is time for our Nation to have a long overdue, robust conversation about building safety and its intersection with natural disasters.

This subcommittee can ignite that debate by moving forward with consideration of this Safe Building Code Incentive Act. The overwhelming evidence supporting the widespread adoption of statewide building codes proves that H.R. 2069 is a fiscally responsible way to make our country stronger, safer, and better prepared for natural disasters.

We must continue to work together across industries, Government agencies and organizations to find better ways to protect lives, home, businesses, and personal property. Based on scientific data and supported by Federal incentives, we can align our efforts to promote modern and effectively enforced statewide building codes across our country.

I look forward to your questions, and thank you for your time.

Mr. DENHAM. Thank you. Thank you to all of our witnesses for your opening testimonies.

We will now have 5 minutes from each Member for questioning. I will start with myself.

Mr. Matthews, in each of the different States that have already implemented their building codes, have you seen a lower insurance premium in those States?

Mr. MATTHEWS. What happens, Congressman and Chairman, is that those reduced expenses, lost costs find their ways into the rates, and over time that should create a more competitive environment. Our industry is highly competitive. There are several hundred insurance companies. So the combination of reduce lost cost and the competitive environment works to the benefit of customers.

Mr. DENHAM. And I come from one of those States that has quite a few earthquakes. In your testimony, you talk about Haiti and the lack of building codes there. Could you go into greater detail about some of the impacts and some of the things that could have been mitigated or could be mitigated in the future if they had a standard building code?

Mr. MATTHEWS. Yes. Actually, as Ms. Rochman said in her testimony, California is one of the better States in terms of building codes. Much of the seismic code that you see that has been adopted around the country comes out of research and experience from the building codes in California.

California has been a leader around fire protection in their codes as well, with residential sprinkler systems as well as mitigating the hazard of wildfire, which is a large exposure, natural disaster exposure in California.

So actually, Mr. Chairman, your State has done a very good job and it would be one of the States that would already qualify for this incentive.

Mr. DENHAM. Thank you.

And, Ms. Rochman, if you could briefly talk about that as well as we are very intrigued about your test facility and want to take a group of Members down there to see firsthand some of the things that you can exemplify with your testing facility. If you could, talk about both please.

Ms. ROCHMAN. Sure, Mr. Chairman. Thank you.

One of the things that we know from the rash of earthquakes that we had last year, not so much the one here, although the Washington Monument is truly even today a testimony to the

power of what even a small earthquake can do; when you look at Haiti versus Chile versus Japan and California, we know that where there are good, strong seismic codes in place, we see much less loss of life and much less damage in property.

The issue we have in this country is that California is not the only State with seismic exposure. There is a substantial area in the midwestern part of the country call the New Madrid Zone, and the New Madrid Zone has actually experienced 200 years ago the worst earthquake recorded in the history of this country. At that time there was very little population. Now, there are about 35 million people living in the New Madrid Zone, and those building codes are not what they need to be when it comes to residential construction.

So there are a lot of things we can do. At our facility, we look at wind, water, fire, and hail. We do not have a shake table. The University of California at San Diego has an excellent research facility for earthquake, as does the University of Illinois.

But we would love to have you come down and look. The video that I showed a little while ago, the difference between those two houses was less than $3,000, and the house that had the continuous strapping, again, holding the roof on by more than gravity stands strong. We ran that house through several tests against houses that were not built as well, that were more brittle, and each and every time the house that was not built to what it should have been went away.

And we always look at those houses, even though we are in a safe observation area as you could be if you would come to watch the test, but it is startling how quickly a house comes apart and how it is absolutely reduced to rubble. That is no longer somebody's home at that point. It is just a pile of debris.

Mr. DENHAM. Well, thank you. We look forward to seeing that first hand.

Ms. Norton.

Ms. NORTON. Thank you, Mr. Chairman.

If I am not mistaken, only about a third, and correct me if I am wrong, of States seem to have building codes. I am trying to understand what it takes particularly given, as you might have heard, my disappointment that the incentives bill met a roadblock here in the Congress, a technical roadblock.

Are States that have building codes, those that had been disaster prone, flood prone, hurricane prone, those States did not have any incentives. How did you discuss the States? Does Louisiana now have a statewide building code? Did it have one before?

Ms. ROCHMAN. No.

Ms. NORTON. Uh-oh. Does that tell me that you need a disaster in order to get a building code? Would that not be terrible?

Do any of you have any notion of what has encouraged some States somehow on their own to adopt building codes and others have hung back?

Mr. MATTHEWS. Congresswoman Norton, I think you have touched on one of the things. One of the sad commentaries on what we have seen in this field is that many times they are very expensive experiences, and they have names called Andrew and Northridge and that sort of thing.

Ms. NORTON. And Katrina.

Mr. MATTHEWS. And Katrina, that convince people to do the right thing after the fact.

You know, what we are really trying to focus with H.R. 2069 is kind of the old adage of, you know, an ounce of prevention is worth a pound of cure. And if you go back and look at what Congress has done in 18 out of the last 23 years of having to vote supplemental funds for disaster aid, you know, it really makes sense that we deal with the issue before it actually happens.

The Milliman study that I referenced, as well, and I appreciate what you are saying about the CBO scoring, but the Milliman study which showed that actually the Federal Government would net $40 million a month, $500 million a year from H.R. 2069 in terms of what building stronger, safer homes, stronger, safer building codes would mean to our country.

Ms. NORTON. In my experience, you never get legislation passed in the Congress by showing dollars and cents saved. I mean I have always been amazed at it. It is one of the best arguments used, but somehow it does not quite matter. And, of course, I thought the incentives might help, and you see the problems as you indicated.

Is there resistance in the States to building codes? Is there resistance from—I do not know—industry, from consumers, from the States themselves? Is there resistance or simply passivity?

Mr. MATTHEWS. I think in some cases it is probably both, Congresswoman. In some cases I do not think people are necessarily aware of the exposure and what they are faced with.

Sometimes there are groups that will vocalize opposition to building codes or they think, again, they are lulled into complacency thinking it can never happen here, until it happens, you know, unfortunately.

To our knowledge, at least from the BuildStrong Coalition, no one has voiced any opposition to H.R. 2069, and it is a very broad-based coalition.

Ms. ROCHMAN. Congressman, if I could just add to that for 1 second, we know from the insurance industry we have taught consumers how to demand safety in automobiles. We have showed them what safer vehicles look like, and now consumers shop on safety.

Safety sells. I think one of the things we have to do is get citizens to understand that a building code is a minimum life safety threshold. It literally keeps the house from spontaneously combusting or falling down around your ears. This is the minimum level at which you can occupy a building. If people understood that the construction was not where it should be, we think that they would demand better, safer homes. It is one of the reasons the insurance industry built our lab, and we are working with home builders and we are working with the construction industry.

Like every industry, there are good actors and people who want to do a good jobs, but in this housing market there is an increasing number of builders who understand that quality construction sells.

Ms. NORTON. Yes. But what I take away is that, you know, when you have a big disaster, you get a building code, and that really bothers me.

Could you just call out the names of some of the States that have strong building codes so I can get some sense?

Ms. ROCHMAN. Sure. Well, you are right, Congressman. Unfortunately people do wait until disaster. So when Katrina hit, for example, Louisiana took 2 years to pass a statewide building code.

Illinois and Texas are States where we have seen a lot of catastrophes, and they do not have statewide codes, or they do and they are not well enforced. But California, Virginia, South Carolina, we do see a number of States increasingly looking at codes because it also levels the playing field for all of the builders in the States. They all have to comply with the same standard.

But we know that there are about 20 States right now that would comply with the legislation as it is written.

Ms. NORTON. Thank you, Mr. Chairman.

Ms. NORTON. Ranking member of the whole committee, Mr. Rahall.

Mr. RAHALL. Thank you, Mr. Chairman.

Mr. Gianato, you have described very well the financial losses that our State experienced and many other damages that occurred during the recent storms. You have also commended our National Guard, and I join you in that. I commend you and your staff, as well as our National Guard under the direction of Major General Jim Hoyer. I commend our emergency responders, our medics, our churches, our local officials, our 911 directors in each of the counties, our American Red Cross, the Salvation Army, AmeriCorps, Vista volunteers, power company workers who worked under very strenuous conditions in tough terrain carrying heavy equipment to try to repair a lot of the power lines, our public service districts, our water companies, et cetera.

Our committee has advanced legislation to reauthorize FEMA disaster assistance, including the requirement that FEMA review the individual assistance program regulations. Do you think that is sufficient or should Congress do more to ensure that the program is flexible enough and fast enough, given that many families have suffered losses that they cannot afford and no Government agency seems able to assist them?

Mr. GIANATO. Congressman, I think you have hit dead on that flexibility is the key to any of these programs. No two disasters are alike, and when we try to develop rules and policies for one disaster to fit another, this latest storm that impacted West Virginia, as I said, is not like anything we have ever seen, and the impact on the citizens is not like a traditional disaster where you can go out and count the number of homes, as you said earlier, that are destroyed.

So I think the key is having the flexibility in the law and the open dialogue with FEMA and the administration to be able to work through the different problems as we come to them.

Mr. RAHALL. Can you describe how our power companies and water companies responded to the extended power outage?

And how can FEMA mitigation grants be used to prevent a recurrence of such an extended power outage periods?

Mr. GIANATO. Well, I think with the power outages we have, in my written testimony it talks about there were 226 transmission lines that were destroyed by this storm, almost 1.6 million miles of line that were down as a result of the storm. Again, this was an unprecedented storm, but I think we have to take the steps to

minimize the ability of the trees to come down on those lines that pulled those down. So those are some of the things that we have to look at that are outside the FEMA realm.

As it relates to the water companies, one of the things that we are doing in West Virginia is we are partnering with the West Virginia National Guard to go out and do assessments of every critical facility, which includes the water and sewer plants, and we are identifying with those facilities what their power generation needs are so that if a situation like this were to occur again and those facilities do not have generators, that we will have in a couple of secure databases the information to allow us to move quickly and place a generator on that site.

I think we need to look at using mitigation funds to install generators on some of the critical facilities and look at how the programs that we currently have can be utilized and look at what changes may need to be made in the future to allow that.

Mr. RAHALL. How can we get gas stations to install backup generators? That was one of the most shocking facts that came out of this recent storm to me, was that gas stations do not have backup power generators, and you would think in times of emergency that is the first thing you need to keep open, is the supply of gas to customers.

We had the gas. It is just the gas stations did not have the power to run those pumps.

Mr. GIANATO. That is correct. The service stations did not have power to run their pumps or in a lot of cases even if they had power to run their pumps and did not have their other systems tied to it, they could not pump gasoline.

So most of those are privately owned, and that is going to be something that we are going to have to work through at the State level, and we plan to. If you look at my written testimony, it also says that Governor Tomblin has ordered a top to bottom review of this event and the impacts that it had and how we can minimize some of the issues in the future, and that is one of the key things that we are looking at, as well as backup power for radio stations because one of the real problems that we had, the traditional means of communicating to the public that we have always utilized in the past failed. When the radio stations and the TV stations went off the air without power, it did not matter if citizens had battery powered radios. They simply could not get the signal.

So we have got to go back to the basics.

Mr. RAHALL. Mr. Chairman, I know my time has expired, but it looks like there is nobody else waiting to ask questions. May I ask one final question?

Mr. HANNA. [presiding.] Go ahead.

Mr. RAHALL. Thank you.

And I would give the entire panel a chance to respond to anything that has been discussed already, but my question to the entire panel would be: do you believe that H.R. 2069 requires States to adopt entire model building codes, or can States pick and choose from certain model provisions?

Chief CLEMMENSEN. Well, I will start.

Mr. RAHALL. Yes.

Chief CLEMMENSEN. I do not see it as a mandate whatsoever. I know there has been other testimony to that. It is an incentive program that I believe will incentivize States to adopt these codes. It is just important that there are the model codes, which we consider a minimum code.

Mr. RAHALL. I appreciate it. Anyone else wish to respond? Ms. Rochman.

Ms. ROCHMAN. Sir, it is clearly not a mandate. It is optional.

I did want to respond to the Congresswoman's questions and just read into the record if it is all right with you, sir——

Mr. RAHALL. Sure.

Ms. ROCHMAN [continuing]. The States that would currently qualify. They would be California, the District of Columbia, Florida, Louisiana, Maine, Michigan, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Pennsylvania, South Carolina, Utah, Virginia, and Washington.

All of those States would have to do nothing at this point to qualify for the extra funds under H.R. 2069.

Mr. RAHALL. Thank you.

Thank you, Mr. Chairman. Oh, I am sorry. I did not mean to cut you off.

Mr. BERGINNIS. Oh, I just wanted to also say that, you know, something that might be instructional for H.R. 2069 is the way the National Flood Insurance Program works. I would argue that the NFIP, 21,000 communities in the country have building and land use codes. A lot of those do not actually have a building code. The only thing they have is the NFIP standards.

It is an incentive program because the incentive is flood insurance is available, but there is a powerful disincentive tied to that because if flood insurance is not available, a lot of folks cannot get mortgages in those flood hazard areas, and so while H.R. 2069 does a very good job on the incentives portion, we need to make sure that within the array of programs that we offer to folks, whether it be post disaster programs and others, that there are some disincentives also tied to that.

And I think that gets back to the question of how do we have more States and more communities actually then adopting these codes. That is a way to do that, by both having incentives and disincentives.

Thank you.

Mr. RAHALL. Thank you.

I thank the panel. Thank you, Mr. Chairman.

Mr. HANNA. Thank you.

Chief Clemmensen, I absolutely believe that you are correct when you talk about sprinklers and the benefits of sprinklers. One of the problems with an incentive program though is that if it is not large enough or that it requires something that is so expensive, that what we design as an incentive becomes a disincentive as we add more requirements to it.

So you must have an opinion about that, which I can almost guess what it is, but I would like to give you a chance to talk about it.

Chief CLEMMENSEN. Well, it is basically just like any other code. There are costs involved, and Congresswoman Norton asked about

why States do not have model building codes. It is because there are lobbyists and people that would rather keep the codes very simplified so that the cost of the housing is less expensive.

Fire sprinklers are the same thing. There is a code involved, obviously, but the cost is probably the same as putting carpeting into your home. However, it does add a bottom line cost to the home, and there are homebuilders who would prefer to keep that cost down so they can sell more homes.

Over the long run through, the savings to the municipality or to the locals is incredible. As an example, I was the Fire Marshal and code official for a large suburban town just outside Chicago, and in 1995, we passed a residential sprinkler code, and now that area of the community has 4,000 homes that are sprinklered. That allowed the community instead of having two fire stations to only have one, and that equates to roughly $1 million a year.

So there is a large savings over the long run.

Mr. HANNA. Sure. But you can see the obvious problem with it, whereas with Ms. Rochman's point, where you simply strap from the foundation right over the top of the house, I assume that is basically what was done there. That is a very cheap, very effective tool.

Incentives are an interesting lever to pull from Government because there is a point of diminishing returns and a point at which, like with sprinklers, it would ultimately disappear.

Any other questions?

Ms. NORTON. Thank you very much.

The chairman has raised a question about cost, and some do not cost much, and you might expect the people would step up to it. Let me raise again what has happened here, and we have had similar things to happen across the country.

As we go across the country, the manifestations may be different, but leave aside the discussion on climate change because we do not know why this is happening, but I can tell you as a native Washingtonian who grew up in this town when there was no air conditioning, we just had the hottest. I am glad that if it had to be the hottest, it was not when I was a child, that is, now that there is air conditioning.

But what I really want to get to are the outages, and our ranking member, I think, spoke about West Virginia and some of what West Virginia went through. This entire region had storms the likes of which in this season have never been seen before. And, by the way, they keep coming.

Now, the communities across the region are up in arms about outages. The last one was a full week. You can imagine at the height of the heat there was no air conditioning. People's food melted. So people have some out and said, "OK. Bury the power lines."

Well, Mr. Chairman, nobody is going to bury those power lines because the same constituents would yell to high heaven for the added costs that buried power lines come forward with. So, you know, some mitigated understand that and they come and say, "OK. Bury some of them."

I have a real question, an honest to goodness practical question. What they have done to mitigate, the power companies, they have begun to trim the trees. That is pretty obvious. Of course, there is

some throw-back on that because some people do not like the trees trimmed quite as much as they want to, but let's take it that everybody agrees that that is a mitigation strategy.

When it comes to these outages, short of burying the lines which is cost prohibitive, in addition to trimming the trees, what do we do to mitigate another week without power—it could have happened here in the Congress, but I guess we would have had some backup. Some kind of backup I am sure occurs here—are people looking at mitigation in terms of the broader sense of that word?

Sure, building codes are old-fashioned by now, but as you meet new and more expensive examples where there appear to be no strategies as to what to do to keep us from going through this again, my question is whether or not there is research being done so that people who honest to goodness would like to mitigate against a shutdown of their entire life for a week, for example, would go to some extra expense to do so.

Are we leaving mitigation only with what we already have on the table and understand should be done, or is the research moving us where differences in climate may be taking us, such as when we had an earthquake here?

I mean, I was sure it was something else. I would have thought it would have been a terrorist strike before I would have thought it would have been an earthquake. Now, I do not think everybody went out and bought earthquake insurance, but when you see those kinds of unusual occurrences, I would feel more comforted to know that those of you who are concerned with mitigation have some word for people trying to prevent these new occurrences.

Does anyone advice for us? Yes, sir.

Mr. MULLEN. Yes. I would say that while I would never kick any new research by the curb, I would think that would be valuable, but I think we know enough now, and if I may, let me tell you where I think there is kind of a contradiction in the sense that the best awareness and the best pressure for mitigation comes from the Federal grant programs down, and mitigation at its core, in my opinion, and I think NEMA believes this as well, that mitigation is a local issue which people need to embrace at the local level, the local decision making and the county planning meetings and those areas. That is where the level of knowledge and commitment has to come.

The Nation has had a pretty good commitment to mitigation. There are a lot of people in this town who believe in mitigation.

Ms. NORTON. But my question goes to what to do.

Mr. MULLEN. OK.

Ms. NORTON. New kinds of disasters or hazards to be mitigated. You know, do you have any examples of what to do with these outages which are occurring not only in this region but across the United States?

Is anybody looking into ways to mitigate things like these outages or other changes that have not been seen before?

Mr. MULLEN. Yes. In my State we just did a major earthquake exercise where the biggest problem we ran into was fuel, the same thing that Mr. Gianato was referring to. This was a revelation because we had private sector personnel in our EOC working with us probably more extensively than ever.

We have not got the answer, but the question is clear now. And I think that a lot of those——

Ms. NORTON. The problem was fuel and what else?

Mr. MULLEN. Fuel for pumps, fuel to just have critical vehicles move around. We had a major scenario that broke a lot of things, and so for 2 or 3 days we were facing the prospect of not being able to do the things that needed to be done for life safety, for basic maintenance of life and comfort because medicines could not move. And a large part of the problem was the absence of fuel generation.

So what we were trying to do and what we will do as part of our followup is begin to look at with our private sector partners how are we going to fix that. What is yours and what is ours?

And I think that is the same point I was about to make in terms of what the Mitigation Alliance, which ASFPM and us and about 18 other organizations are part of, is beginning to look at. How do we convince, persuade, cajole, educate people at the local level to begin addressing their problems and see if between the Federal incentives and push and the local and State awareness we can come to some kind of middle ground here where everyone is doing what they should be doing, and no one is being asked to do more than is appropriate.

I have not got an answer for you, but I can tell you that those discussions in my State and some other States are going forward. I am sure they are going forward in West Virginia now. Experience teaches us unfortunately. The reason our codes are good is because we had earthquakes in the 1960s and people got smart.

But we need to learn from the lessons, and if we do not learn our lessons, we will repeat the mistakes.

Mr. BERGINNIS. Congressman, one of the things I want to mention is that one of the tools that is available now that this committee way back in 2000 really set the table for the Nation, and that is mitigation planning. There is a requirement at the local level and at the State level to update plans 5 years and 3 years, respectively.

And in updating those plans, key aspects of that include a reanalysis of your hazards. Have they changed? Exactly as you talked about, the hazards change over time. They are never static, and we need to be prepared to respond and mitigate against those. So there is a risk assessment aspect that goes.

But as important, and maybe this has not been focused on as much as it really needs to, and that is an analysis of mitigation options. I have gone to so many communities, especially after floods in Ohio where they have the "what next" moment. It is usually right after the event. It is the first council meeting that happens, and all of the leadership are saying, "My goodness, what is next? What do we do now?"

If you have through mitigation planning in a nondisaster time identified the range of options that you can mitigate against a particular hazard, you are going to be set much more effectively in your recovery and ultimately in your resiliency.

So I would offer that mitigation planning is really an effective tool, to answer your very question.

Thank you.

Chief CLEMMENSEN. Congresswoman, I would just like to say that in the Chicago metro area, they have started a new power system called a smart grid. It is too new really to take effect yet, but we have always been trimming the trees.

But to be proactive and the part of the mitigation testimony here is that we went out and we have created cooling shelters because we know that no matter how smart the grids are, how many trees they trim, the power is always going to go out.

We just had an incident last month where over 100,000 customers were without power. So we set up cooling sites around the city and around the suburbs for these people to go to at least be cool in these very extreme temperatures.

Ms. NORTON. I thank you for those examples, you know, and particularly for the notion of mitigation planning. I had not thought about that as a responsibility that the States already have. So that one of the things that I am going to do is to go back and see if the Federal Government and my own district and this region are planning for the next earthquake instead of saying, "Well, that was a once in a century matter. Now let's go back to business as usual."

So thank you very much for your suggestions.

Thank you, Mr. Chairman.

Mr. HANNA. Thank you.

If there are no further questions, I would ask unanimous consent that the record of today's hearing remain open until such time as our witnesses have provided answers to any questions that may be submitted to them in writing, and unanimous consent that the record remain open for 15 legislative days for any additional comments and information submitted by Members or witnesses to be included in the record of today's hearing.

Without objection, so ordered.

I would like to thank the witnesses once again for your time here today and for your service to your communities. If no other Members have anything to add, the subcommittee stands adjourned.

[Whereupon, at 11:57 a.m., the subcommittee was adjourned.]

Hearing- A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters
2167 Rayburn House Office Building
July 24, 2012, 10 A.M.
Congressman Billy Long (MO-07)
Statement for the Record

On May 22, 2011 an EF-5 tornado touched down in Joplin, Missouri and cut a wide swath of damage through the heart of the city. Both residential and commercial buildings were completely swept away, resulting in massive loss of lives and around 1,000 injured. Within hours the Federal Emergency Management Agency (FEMA) had personnel on the ground to begin assisting with response and recovery efforts. FEMA's outstanding efforts helped coordinate a plan of action to remove debris, relocate displaced individuals, and return vital public services to operation as quickly as possible. While Joplin's road to recovery is still ongoing it has made significant strides toward repairing the destruction that descended from the sky on that otherwise normal spring day.

Joplin's tragedy should serve as a warning to all of our nation's communities that despite modern technological advancement we are still very much at the mercy of extreme natural events like hurricanes, tornados, earthquakes, and floods. It is important that we continually work to improve the strength of our nation's buildings, especially critical infrastructure and large buildings, in order to reduce the damage and loss of life which can be caused by natural disasters.

A little common sense should help take us a long way. Builders and residents need good information about the types of natural disasters, their frequencies and range of severity so that they can plan construction accordingly. We need to recognize that no measure or building code can completely eliminate the dangers posed by natural disasters and the realities of limited financial resources available when building new structures. This means that the resources available should be used wisely. Builders should be given the information and encouragement to tailor each new structure to the disaster profile of the area where it is being built. Residents should also be encouraged to take note of the disaster profile of their region. Everyone knows to expect hurricanes in Florida and earthquakes in California, but many regions also have potential disasters that occur infrequently enough that many people don't realize the potential danger even exists. New residents to an area may even be unaware of risks that long time residents would be familiar with.

States and local communities should also be encouraged to make sure the vital services they provide such as fire, police, and medical emergency response services. Other vital services such as water and electricity should also be singled out for special measures to ensure continuation or rapid restoration in the face of a disaster. Hardening these kinds of services and facilities, if done properly, may also yield long term cost savings by making maintenance easier and less frequently needed.

The issue of disaster mitigation through better building practices and materials is one that will always be with us. As we continue to develop a better understanding of the environment around

us and our technological advancement allows us to deploy better methods of protecting ourselves from disasters, it will be necessary to revisit our approach to this problem. We live in a dynamic, ever changing world and so our thinking about how we can best adapt to our environment must always be in the process reevaluation and introspection. Painful lessons, like the ones learned in Joplin, Missouri and countless other disasters, both large and small, around our nation must be examined with open-eyed clarity if we're to improve safety. Like all problems, we must also recognize that not every solution will come from the government. Local communities, residents, business owners, architects, engineers, and others must also be a part of the process. America's strength comes from the open competition of ideas where many different actors can compete, rather than from top down or centralized planning that lacks the access to information or the agility of the millions of individuals who make up our national society.

I appreciate the efforts of Chairman Denham on this issue. I look forward to working with him and the rest of the Committee to enhance our nation's ability to mitigate the damage that disasters can inflict on the American people.

Rep. Billy Long (MO-7)

Eleanor Holmes Norton

STATEMENT OF
THE HONORABLE ELEANOR HOLMES NORTON, RANKING MEMBER
SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS AND EMERGENCY MANAGEMENT HEARING RE:
"A REVIEW OF BUILDING CODES AND MITGATION EFFORTS TO HELP MINIMIZE THE COSTS ASSOCIATED WITH NATURAL DISASTERS"
JULY 24, 2012

Good morning. I want to join my colleagues in welcoming today's witnesses to discuss the benefits of mitigation and how building codes may reduce costs associated with natural disasters.

Over the last several years, the Subcommittee has held several hearings on the importance and benefits of mitigation. The committee has referred to studies by the National Institute of Building Sciences and the Congressional Budget Office that found that mitigation saves taxpayers $3 to $4 for every dollar invested. Mitigation does far more than save money though, it reduces injuries and saves lives. The underlying question is, what should Congress do to encourage more mitigation activities?

FEMA has two mitigation programs: the Pre-Disaster Mitigation Program and the Hazard Mitigation Program. Both programs are essential to saving lives and saving tax dollars

by decreasing the amount of damage resulting from disasters. Over the last several years, this Subcommittee has explored other avenues for strengthen our Nation's efforts to limit future damages. One such avenue is the benefits of building codes. It seems logical that if State and local communities have in place enforceable building codes when construction occurs, disaster-related damages should decrease.

I look forward to hearing from our colleague and former Member of this subcommittee, Mr. Diaz-Balart, and am pleased to be a cosponsor of his bill, H.R. 2069. That bill would provide an incentive for States to adopt and enforce building codes that will result in less damage after disaster strikes. Recently, the National Association of Mutual Insurance Companies released a study finding that FEMA would have saved $11 billion in hurricane damage payouts since 1988 if those damaged structures had been built to a model building code. While disasters always expose new avenues for mitigation after the fact, given the potential savings, Congress must do more to try to limit or prevent damage before it happens.

An important benefit of mitigation that is often overlooked is the investment in communities. Mitigation can help to stimulate economies through increased economic

development and benefitting a community that knows that disaster effects may be limited or prevented and not impact businesses and homes. Providing disaster resilient structures and infrastructure will encourage communities, residents and businesses to stay or to return to a community.

Finally, I must note that like the rest of the Eastern coast, the District was hit hard by the June storm, with straight line, hurricane force winds that downed many power lines. I am interested in hearing more about mitigation best practices to prevent or limit future power outages, particularly considering that as the June storm was not the first time that the District suffered mass power outages nor, unfortunately, will be probably be the last if mitigation activities are not performed.

I appreciate today's witnesses preparing testimony to help the subcommittee think through these issues.

STATEMENT OF THE HONORABLE NICK J. RAHALL, II
RANKING MEMBER
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
ON THE
SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS AND EMERGENCY MANAGEMENT HEARING RE:
A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters
July 24, 2012

I am pleased to join in welcoming all of our witnesses to today's hearing but I want to extend a special welcome to my friend from West Virginia, Jimmy Gianato.

Jimmy has a well-deserved reputation in West Virginia as a crisis manager, having served as the West Virginia Director of Homeland Security and Emergency Management since 2005. His dedication and expertise were critically important in helping to organize our State's response to the June 29th derecho (du RAY cho) storm that left residents and businesses in every county of my State – 680,000 electrical customers in total – without power. Jimmy's tireless efforts are even more remarkable given the loss of his own home in that same massive storm due to a lightning strike.

Mr. Chairman, it should be disconcerting to this Committee that more than two weeks after that monstrous storm had passed, thousands of West Virginia residents and businesses were still without power. That means two weeks without air conditioning in extreme heat; two weeks without refrigeration as food spoiled in family kitchens and grocery stores; two weeks of relying on battery-powered radios, flashlights, candles, canned goods, and the generosity of friends and neighbors. That's what we're about in WV. Friends helping friends, family helping family, strangers helping strangers.

In addition, the lack of generators at gas stations created fuel shortages, leaving many in long, panicky lines that lasted for days. The lack of generators at hospitals and nursing homes, along with disruptions to water and sewage treatment facilities, left elderly and vulnerable residents sweltering, and caretakers struggling to provide food, water, and medicine, and in some cases oxygen.

Small businesses were forced to close their doors for days, losing critical sales. Workers were unable to do their jobs, losing pay. And these already financially strapped families and business owners were hit with multiple unexpected costs, like the purchase of generators – if they could be found – made worse by the inability to get cash at banks that had no power. The Governor of West Virginia estimates that residents and businesses, combined, lost a total of, at least, $340 million.

+ I highly commend all for their responses to our recent storms

Emergency response officials are appropriately asking questions about the feasibility and cost-effectiveness of burying power lines, and considering the potential need for generators to be locally available at gas stations, health care facilities, and other public and private locations. Concerns have been raised about the electrical grid and its capacity to endure emergencies like that devastating storm.

Since 1995, over $58 million has been invested in West Virginia mitigation activities, primarily for flood prevention. In 2005 and 2007, two separate studies confirmed that hazard mitigation activities reduced future losses by $3 - $4 for every dollar spent.

This morning, I am interested to learn more about the types of mitigation activities that can be undertaken to prevent future power outages like that experienced on June 29th. Equally important, I want to know about potential steps that Congress should take to allow or encourage more mitigation activities to prevent future widespread power losses.

I look forward to Jimmy's testimony on how risk assessment, planning and construction may help reduce further damage and limit some of the turmoil caused by massive power outages.

Mr. Chairman, just yesterday the President issued a Disaster Declaration to help communities – including every county in my District – with recovery expenses resulting from the June 29 storm, making the third such declaration for my State this year. While I am grateful that the Administration has so expeditiously opened the way for this public assistance, I must note that the State is now in the process of seeking individual assistance to help families and businesses hard hit by the storm. It is certainly my hope that this part of the process is moved along just as quickly so that West Virginians can soon receive the full measure of help they so badly need to recover from the devastating June storm.

Thank you, Mr. Chairman, and I look forward to all of today's testimony.

Testimony of Mario Diaz-Balart
U.S. Representative (FL-21)

Before the Committee on Transportation and Infrastructure

Subcommittee on Economic Development, Public Buildings, and Emergency Management

July 24, 2012

"A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters"

Thank you Chairman Denham and Ranking Member Holmes Norton for holding today's important hearing on building codes and efforts to minimize costs associated with natural disasters. It is a pleasure to be back with the Transportation Committee, where I served for eight years, including the last two as Ranking Member of this Subcommittee.

From the destructive wildfires in Colorado this summer to the tornados that wreaked havoc in Joplin, Missouri to Hurricane Irene's pounding and severe flooding along the East Coast, we have been reminded of the dramatic manner in which major storms can destroy lives, disrupt communities, and cause major damage.

The economic losses associated with major weather events in the first half of 2012 are already more than $14.6 billion, including $9.3 billion in insured losses. Two major wildfires in Colorado in June caused record damage, the largest wildfire in New Mexico history occurred in May, and an active early hurricane season with Tropical Storms Beryl and Debby caused wind damage and extensive flooding in Florida.

It is evident that Mother Nature is sending us a wake-up call. We need to answer it and move decisively to promote sound strategies that save lives, mitigate the devastation of future disasters, and save taxpayer money. The foundation of our national response should be the adoption of model building codes that will make our homes and businesses more resistant to nature's forces. Strong building codes are widely accepted in the emergency management community as being our best line of defense against tornadoes, hurricanes, earthquakes, flooding, and other weather induced disasters. It is not enough to simply pass another supplemental appropriations bill and wait for the next storm to hit.

As Congress continues assisting communities rebuild following natural disasters, it is vital that we seize this opportunity to encourage states to update their building codes in a manner that will protect property, save lives, and ultimately reduce taxpayer exposure to natural disasters.

While the evidence is overwhelming that strong building codes work, most states have yet to adopt them or put in place inspection mechanisms to ensure compliance.

That is why I, along with my colleagues Representatives Albio Sires (NJ), Richard Hanna (NY), and Steve Southerland (FL), have introduced H.R. 2069, the Safe Building Code Incentive Act. This legislation provides a financial incentive for states to voluntarily adopt and enforce model national building codes for the construction of new residential and commercial properties. Qualifying states would receive an additional 4 percent in post-disaster relief grants from the Federal Emergency Management Agency to address long-term hazard mitigation, such as improving drainage structures, restraining cables on bridges, elevating structures to reduce flood damage, and installing window shutters for hospitals and other critical facilities. This bill rewards states that already have and enforce building codes, and states that don't have them are given a significant incentive. It is important to note that this bill does not place a mandate on states that do not currently have and enforce statewide building codes.

In H.R. 2069, the additional 4 percent of funding awarded to qualifying states struck by future disasters would be paid for by reallocating existing funds within the FEMA-managed Disaster Relief Fund. Furthermore, additional research shows that investments in mitigation activities, such as the adoption of strong building codes, generate substantial returns for taxpayers and the economy. According to a 2005 FEMA-commissioned study by the National Institute of Building Sciences, for every $1 spent on hazard mitigation at the federal level, the nation reaps $4 in benefits. The Congressional Budget Office (CBO) also conducted a study that examined mitigation projects funded from 2004 to mid-2007, and found that nearly $500 million invested through Pre-Disaster Mitigation grants resulted in future losses reduced by $1.6 billion. In other words, for every dollar invested in mitigation, $3 dollars were saved.

Encouraging states to adopt model national building codes can help fortify our nation's defenses against major storms. In the aftermath of Hurricane Katrina, Louisiana State University's Hurricane Center conducted a landmark study on the effectiveness of model building codes. The findings were eye-opening. If strong building codes had been in place, wind damage from Katrina would have been reduced by 80 percent, saving $8 billion. LSU also studied the effect of Katrina in Mississippi and found that with strong building codes in place, economic losses would have been reduced by $3.1 billion and that almost 40,000 buildings would have been spared major damage.

With over 1,200 miles of coastline, more than any other state in the continental United State, my home state of Florida is often in the path of hurricanes and tropical storms. Next month marks the 20th anniversary of Hurricane Andrew's landfall, a category five storm, which devastated South Florida, killed dozens, and at the time was the costliest hurricane on record with $26.5 billion dollars in damage. Following the storm, our state made a commitment to become the gold standard for utilizing strong building codes as a disaster mitigation strategy. The model building codes we put in place have played a vital role in containing the damage of subsequent storms in Florida. According to research conducted by the Insurance Institute for Business and Home Safety (IBHS), Florida's building codes reduced the severity of property damage resulting from Hurricane Charley in 2004 by more than 40 percent.

A recent study by IBHS examined and rated the building codes in 18 states along the Gulf of Mexico and East Coast that are vulnerable to hurricanes. On a scale of 100, both Florida and Virginia scored 95. Both states scored exceeding well due to strong statewide building codes, and comprehensive regulatory processes for building code officials and contractors. In South Florida, the building code exceeds that in other parts of the state, making homes and businesses even more hurricane safe. Out of the 18 states, states that are often hit the hardest by hurricanes—Mississippi, Texas, and Alabama—scored towards the bottom.

The facts surrounding strong building codes are clear and widely embraced by disaster mitigation experts and emergency management officials. As Congress considers disaster funding in response to current and future disasters, the Safe Building Code Incentive Act can make our homes and communities safer and stronger while saving lives, reducing long-term costs, and ultimately saving taxpayer dollars. We can't afford to pass up an opportunity to do something lasting for the American people.

Mr. Chairman, thank you for holding this important hearing and for the opportunity to testify before this subcommittee.

Testimony of
Mr. David Miller, Associate Administrator
Federal Insurance and Mitigation Administration
Federal Emergency Management Agency
U.S. Department of Homeland Security

Before
House Committee on Transportation and Infrastructure
Subcommittee on Economic Development, Public Buildings, and Emergency Management
July 24, 2012

Introduction

Good morning, Mr. Chairman and Members of the Committee. My name is David Miller and I am the Associate Administrator of the Federal Insurance and Mitigation Administration (FIMA). I appreciate the opportunity to discuss the importance of building codes and mitigation with the Committee.

Mitigation is the thread that permeates emergency management. Mitigation has an overlapping role across response, recovery, and preparedness. By taking active steps to lessen the impact of disasters before they occur, mitigation reduces the loss of life and property endured by affected communities. Mitigation efforts support more rapid recovery from disasters and lessen the financial impact of disasters on the Nation. Stringent building codes, flood-proofing requirements, earthquake design standards, wind-bracing requirements for new construction, and repair of existing buildings are examples of mitigation efforts. Other examples include adoption of zoning ordinances that steer development away from areas subject to flooding, storm surge, or coastal erosion, and the retrofitting of public buildings to withstand hurricane-strength winds or earthquake ground motions.

Mitigation is achieved through risk analysis, which provides the intelligence that creates a foundation for mitigation, and risk reduction, which can break the cycle of disaster damage, reconstruction, and repetitive damage. Since the establishment of FIMA on November 29, 1993, mitigation has been a cornerstone of emergency management. Our vision is "a Nation committed to a disaster-resilient and sustainable future." We engage partners from a broad spectrum of Whole Community stakeholders that include Federal, state, tribal, territorial, local, non-profit, and private sector organizations. This includes national leaders in building code development and enforcement.

To support our efforts, FIMA relies heavily on FEMA's Building Science Branch to provide the technical services necessary for risk reduction and efficient, effective mitigation. The Building Science Branch develops and produces multi-hazard guidance focused on creating disaster-resilient communities to reduce loss of life and property. The Branch takes a lead role in developing publications, guidance materials, tools, technical bulletins, training, and recovery advisories that incorporate the most up-to-date building codes, flood-proofing requirements, seismic design standards, and wind design requirements for new construction and the repair of existing buildings.

FEMA's Role in Building Codes

Building codes and standards provide safeguards for people at home, at school, and in the workplace. The International Codes (I-Codes), promulgated by the International Code Council (ICC), are a family of building and fire safety codes which provide a complete set of coordinated, comprehensive, and contemporary building and fire safety standards available for adoption by jurisdictions. Throughout the United States, code enforcement officials, architects, engineers, designers, and contractors work with a consistent set of requirements that, wherever adopted, lead to consistent code enforcement and higher quality construction. Despite the strength of the I-Codes, adoption of model codes can be uneven across and within States, even in areas with high levels of seismic hazard. The most effective codes are those that are both up-to-date and widely adopted and enforced.

Natural disasters such as hurricanes, tornadoes, tropical storms, earthquakes, and wildfires can have a devastating effect on the built environment and the economy. Studies of various catastrophes demonstrate that effective building code enforcement greatly reduces associated losses as described below. Post-disaster assessments of many communities have shown a direct relationship between building failures, the codes adopted, the resources directed toward implementation and enforcement, and the services available to support those codes.

Development of the I-Codes is based on a proven system of providing for public safety by allowing all interested and affected parties to participate in code creation. The code development procedures of the ICC allow anyone to submit a code change proposal, make a public comment and participate in the debate on any change. A Committee for each code, with a balance of members representing general interests, users of the code and producers, considers all views expressed and vote to recommend the disposition of each code change. Evidence of the committee vote on each change, with reason, is documented and published along with any challenges to each change. At a subsequent hearing the voting members of ICC representing state and local government vote on the final disposition of eachcode change. The results determine what is included in the new edition of each I-Code, published every three years.

The I-Codes governmental consensus process is an open, balanced, and inclusive code development procedure. FEMA and other federal agencies participate in this process as a means to satisfy the National Technology Transfer Act, which directs federal agencies to utilize voluntary private sector consensus codes and standards to the maximum extent possible in meeting their mission. The procedure follows the principles of openness, transparency, balance of interest, due process, an appeals process, and consensus, and is consistent with the manner in which Federal, state, and local laws are developed and finalized.

FEMA supports the development of safe building codes by continuously monitoring, strengthening, and maintaining disaster-resistant provisions of national level building codes and standards. Over the past 30 years, FEMA has worked with national model building codes and standards groups as well as engineering and construction industry groups to propose and gain adoption of numerous disaster-resistant provisions for earthquake, wind, and flood hazards in the Nation's model codes and standards. The Agency also participates in various codes and

standards committees to share lessons learned from previous disasters and lend insight to code-related studies.

In addition, FEMA engages with organizations like the ICC, and state and local building officials to help develop and encourage adoption of disaster-resistant building codes and standards. The core reference standard for the International Building Code flood provisions is the American Society of Civil Engineers' (ASCE) publication on *Flood Resistant Design and Construction*, ASCE 24, which contains hundreds of flood damage resistant building provisions championed by FEMA that are consistent with National Flood Insurance Program (NFIP) guidelines. The core reference standard for the International Building Code's earthquake provisions is the ASCE *Minimum Design Loads for Buildings and Other Structures*, ASCE 7. FEMA's extensive contributions to these publications and our collaboration with many partners in mitigation have successfully shaped the International Building Code into a model substantially equivalent to the building requirements of the National Flood Insurance Program (NFIP) and the National Earthquake Hazards Reduction Program (NEHRP).

FEMA's role in building codes is likely to evolve given the recent passage of the Biggert-Waters Flood Insurance Reform Act of 2012. The legislation directs FEMA to conduct a study and submit a report to Congress regarding the impact, effectiveness, and feasibility of amending section 1361(Criteria for Land Management and Use) of the National Flood Insurance Act of 1968 (42 U.S.C. § 4102) to include widely used and nationally recognized building codes as part of the floodplain management criteria in that section of the Act.

Current Programs and Initiatives

FEMA helps thousands of communities and tens of thousands of individuals avoid the suffering and economic loss associated with disaster damage through risk identification and analysis; sound floodplain management strategies; support for strong building codes; and grants to strengthen the built environment.

To help save lives in extreme wind events, we encourage construction of safe rooms through grants programs like the Hazard Mitigation Grant Program and Pre-disaster Mitigation Grant Program. Since 1999, FEMA has helped fund 1,334 community safe rooms in 20 states, including 235 in 2011, a nearly 90 percent increase from the 124 rooms constructed with FEMA funding in 2010. According to a 2005 report by the Multihazard Mitigation Council, a public/private partnership designed to reduce the economic and social costs of natural hazards, FEMA grants disbursed between 1993 and 2003 to mitigate the effects of floods, hurricanes, tornados, and earthquakes are expected to save more than 220 lives and prevent almost 4,700 injuries over approximately 50 years.

In addition to saving lives, mitigation saves money. According to a study by the Multihazard Mitigation Council, every dollar invested in mitigation saves, on average, four dollars that would be spent after a disaster for repairs and recovery. Mitigation programs save the American public an estimated $3.4 billion dollars annually through a strategic approach to natural hazard risk management. In 2011, FEMA's Hazard Mitigation Assistance (HMA) programs helped local communities across the United States prepare for future disasters by providing up to $252

million in flood grant funds for mitigation activities affecting more than 1,300 properties. These measures are expected to result in potential losses avoided of approximately $502 million for flood programs.

Further evidence showcasing the benefits of mitigation can be seen in a loss avoidance study in Kenosha County, Wisconsin, which showed the acquisition of residential structures from 1995-2008 at a cost of $11 million resulted in losses avoided of $14.5 million. In Birmingham, Alabama, a similar study showed the acquisition of 735 residential properties from 1995-2000 at a cost of $43.3 million resulted in losses avoided of $63.7 million.

FEMA's HMA programs present a critical opportunity to reduce the risk to individuals and property from natural hazards while simultaneously reducing reliance on Federal disaster funds. This program is one way FEMA supports mitigation through a Whole Community approach, and also works to implement Presidential Policy Directive 8 (PPD-8), which aims to strengthen the security and resilience of the United States through systematic preparation for threats that pose the greatest risk to the security of the Nation. As part of PPD-8, FEMA and its interagency partners are developing the National Mitigation Framework (NMF) and will align key roles and responsibilities to deliver capabilities and provide a unified, integrated, accessible system with common terminology. Creation of this framework will be guided by the principles of resilience and stability; leadership and locally-focused implementation; partnerships and inclusiveness; risk-based culture; credibility and relevance; and risk.

The NMF and its companion Federal Interagency Operational Plan were developed by interagency partners to provide a more detailed concept of operations; describe critical tasks and responsibilities; detail resource, personnel, and sourcing requirements; and provide specific provisions for the rapid integration of resources and personnel. The Community Resilience and Long-Term Vulnerability Reduction core capabilities of the NMF specify critical actions pertaining to building codes and their enforcement. The NMF will help us create a nation-wide, holistic, integrated model for mitigation.

How does FEMA encourage mitigation at the state/local levels?

PPD-8 emphasizes the need for an all-of-nation approach to preparedness. In an effort to support development of building codes and engage state and local partners, FEMA has collaborated nationally to bring attention to the importance of these codes through Presidential Proclamations declaring the month of May as National Building Safety Month in both 2011 and 2012. National Building Safety Month is endorsed by many state Governors and thousands of local jurisdictions across the country.

FEMA also uses a variety of programs to reach members of the Whole Community. The Risk Mapping, Assessment, and Planning (Risk MAP) Program strengthens state, tribal, territorial, and local government capability by providing actionable risk information, mitigation planning tools, and risk communication outreach support.

FEMA's funding for state and local hazard plans and projects for state, tribal, territorial, local, non-profit, and private sector partners reduces overall risks to the population and structures while

reducing reliance on funding from actual disaster declarations. For example, the Susquehanna River flooding in 2006 inundated Our Lady of Lourdes Hospital in Binghamton, New York with 16-20 inches of contaminated floodwater, forcing patient evacuations and a shut-down of critical operations for two weeks, causing an estimated $20 million in losses. Following the disaster, funds from FEMA and the State of New York supported construction of a floodwall at a cost of approximately $7 million. When Tropical Storm Lee again caused flooding in 2011, it damaged approximately 2,000 buildings, and engulfed the hospital parking lot in floodwater. However, due to the mitigation investment, the 14-foot reinforced concrete floodwall extending around the hospital allowed the facility to operate at full capacity during and after the storm, thereby avoiding the losses suffered during the earlier flooding.

Our Lady of Lourdes Hospital did more than mitigate financial losses during Tropical Storm Lee. By continuing to operate at full capacity amidst the storm, the hospital brought stability to the affected community and provided support for the recovery efforts to follow. In addition to cost-savings, mitigation creates additional, non-quantifiable benefits. Heightened community awareness, knowledge of risk management, and understanding of emergency management topics throughout the community are immeasurable benefits stemming from mitigation efforts.

Conclusion

Mitigation is a central part of FEMA's mission to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards. Mitigation is an essential component of national preparedness and emergency management, and strengthens significantly our chances of saving lives and avoiding costs during disasters. Adoption of effective building codes in local ordinances can further mitigation efforts and preserve lives and property that would otherwise be lost.

Thank you, Mr. Chairman, for providing me this opportunity to appear before you today. I look forward to answering any questions you or other Members of the Committee may have.

MR. JIM MULLEN

President, National Emergency Management Association
Director, Washington Division of Emergency Management

STATEMENT FOR THE RECORD
Submitted to the House Committee on Transportation and Infrastructure
Subcommittee on Economic Development, Public Buildings, and Emergency Management
United States House of Representatives

A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters

July 24, 2012

Introduction

Good Morning Chairman Denham, Ranking Member Norton and distinguished members of the Subcommittee. My name is Jim Mullen and I am the Director of the Washington Emergency Management Division. Thank you for the opportunity to present testimony today on behalf of the National Emergency Management Association (NEMA) of which I currently serve as President. NEMA represents state emergency management directors of the 50 states, District of Columbia, and the U.S. Territories.

In the continuum of emergency management, mitigation plays a critical, yet often overlooked role. The ability to effectively explain the role of mitigation and the need for efficient and effective mitigation remains a challenge for the emergency management community. We have fought for funding of programs but have not attached mitigation funding to community preparedness, disaster response, or recovery. While we continue to testify before Congress, write letters to the Hill and federal agencies, or even discuss programs with other stakeholders, we have seemingly not successfully articulated why mitigation is a key link in the emergency management chain. We remain challenged to illustrate why the public should demand mitigation or why Congress should move beyond their current position of short term fixes for this long term problem.

In 2009, NEMA collaborated with over twenty organizations to draft a paper titled *Recommendations for an Effective National Mitigation Effort*. The paper was an examination of the status of mitigation and included suggestions for how to elevate mitigation to a national priority. The effort was funded through a cooperative agreement with Federal Emergency Management Agency (FEMA) and the partnership has been crucial. The first recommendation of the paper was the creation of a collaborative alliance. This entity would be a starting point to expand and discuss the above ideas as well as form a collaborative environment for future direction and strategy. Federal, state, local, and tribal government and private enterprise would be equal partners in such a collaborative body.

Since the paper was released, an Alliance has been formed and has met multiple times for strategy meetings and Hill briefings. The Alliance has successfully positioned itself as a critical information sharing link between Federal government partners, state and local emergency management agencies, and additional mitigation stakeholder organizations. NEMA serves as a Tri-Chair of this Alliance along with the Natural Hazard Mitigation Association and the Association of State Floodplain Managers. NEMA is committed to furthering the discussion on mitigation and the Alliance illustrates our long-term dedication.

What is Mitigation?
Mitigation can be defined as "any sustainable action that prevents or minimizes injury or harm to people, prevents or minimizes damage to property, and ensures continuity of critical societal functions." While there is an initial cost to mitigation activities, the benefits of this investment are achieved with long term goals in mind. Effective mitigation:

- Averts loss of life and injury to people;
- Reduces damage to public and private property;
- Lessens expenditure of resources and exposure to risk for first responders;
- Reduces costs of disaster response and recovery;
- Accelerates recovery of communities and businesses affected by disasters, and;
- Enhances community resiliency.

We mitigate so that preparedness is based on the best assessment of the threats and the measurement of that threat; we prepare because we cannot mitigate every threat; we respond because mitigation and preparedness can limit disruption and damage but cannot eliminate events that can threaten life safety; and we recover because it is important that we return to what our new normal has become, both individually and as a community. In the wake of a disaster and establishing lessons learned, we then resume mitigation efforts of known or perceived threats all over again. The cycle of emergency management begins and ends with mitigation.

Challenges to Mitigation
At its core, mitigation is easy to justify and seems like common sense. In practice, however, there are many barriers to fully integrating mitigation into state and local preparedness efforts.

Federal Funding Structure
The current funding structure for mitigation is a barrier to full integration and implementation of a national mitigation strategy. Take for example the funding of the Predisaster Mitigation (PDM) Program over the past several years. At one time, the program was funded at over $100 million. The past several budget cycles, however, have seen this program dwindle to near-insignificant amounts. The PDM program is not about saving what we can of a $35 million grant program, but rather must help instill a culture of mitigation throughout all we do as emergency managers. The program may be the figurehead of mitigation at the federal level, but without an objective evaluation of the grant program's ability to affect investment in mitigation projects, we do not yet understand how it has truly moved the needle on the preparedness dial.

On the federal level, the FEMA Hazard Mitigation Assistance grant programs provide funding opportunities for pre- and post-disaster mitigation. While the statutory origins of the programs differ, all share the common goal of reducing the risk of loss of life and property due to natural hazards. Grantees are eligible to receive funding for PDM, Hazard Mitigation Assistance Program (HMGP), Severe Repetitive Loss (SRL), Flood Mitigation Assistance (FMA), and Repetitive Flood Claims (RFC). While PDM, SRL, FMA, and SRL funds are set funding levels, HMGP funds are only available to jurisdictions that experience a major disaster declaration and funding levels are determined as a percentage of their overall federal assistance.

It would seem that while the amount of funding for the other HMA grants is small in comparison, HMGP funds can be quite significant. It cannot be overstated how crucial mitigation is post-disaster to address critical points of failure, but it would seem that the major federal investment in mitigation occurs after the damage has been sustained. Instead of capitalizing on the 1:3 ratio of dollars invested to dollars saved on recovery costs, the federal government is missing the opportunity to focus money on the front end instead of on the back end.

We cannot stress enough the economic benefits of mitigation in terms of the recovery process: with a basic hazard mitigation plan, a jurisdiction is eligible for up to 15 percent of "allowable" costs in HMGP funds; with an enhanced plan eligibility rises to 20 percent. The challenge has been that these dollars arrive well after the event, and the delay actually creates a disincentive for substantive mitigation actions. Justifiably, states are not willing to spend money getting a mitigation project ready for full implementation before the funding from the federal government arrives because the risk of not getting the money at the end of all that preemptive work is not an efficient use of taxpayers' money in a constrained fiscal climate.

Communication of the Role of Mitigation
While the term "branding" is not often one that comes to mind when we discuss emergency management, any good public affairs specialist will tell you it is critical in communicating an effective message. Preparedness is easily recognized by the disaster kits we encourage our citizens to put together prior to hurricane season. Response is dominated by the news coverage of harrowing swift water rescues, or officials meeting with local community leaders to survey damage. Recovery is evidenced by construction crews and the reuniting of survivors with their homes. We seem to be always trying to answer the question: What does mitigation look like? By nature, it is less obvious than the other areas of emergency management which makes communication all the more critical. To mitigate against a hazard can hold different meanings for different individuals or communities. Therefore, the challenge becomes making mitigation accessible and applicable to any audience.

For example, the private sector makes mitigation decisions all the time, but they do not always call it "mitigation." Regardless of how the process is labeled, businesses invest in long-term profitability, protect current investment, eliminate or lessen future loses, and assure their business can remain open and operating despite natural and man-made risks to their infrastructure. They identify the needs of their community, and act to mitigate the risks to those needs. Mitigation makes good business sense, and the private sector continues to communicate their motives to corporate and community stakeholders.

Examples of Necessary Elements of a National Mitigation Strategy
In order to achieve the goals of mitigation as a national strategy, there are actions that must be taken. These actions are not the responsibility of one single agency or organization and while this decentralized approach can often create a lessoned sense of urgency, it will assure mitigation can transcend shifting political priorities and weather challenging fiscal climates.

Embed Mitigation in Policy Development as Broadly as Possible
Guiding risk reduction policies and specific hazard mitigation measures enhance individual and agency resilience through redundancy, protection, and preparedness. These are not the sole domain of any single agency, discipline, or profession. Executives and policy makers in many domains could advance the reduction of risk in ways outside their traditional scope of responsibility. If the discussion of the mitigation of future loss was embedded in a wider variety of policy and public choice discussions, then decisions that inadvertently increase risk would either be avoided or, at least, acknowledged in an open and transparent dialogue. For example, one opportunity would have been a requirement to include hazard mitigation measures, or at least their consideration, in the project guidance for the Infrastructure Investment Act of 2009.

Educate and Embrace Federal, State, and Local Officials
Mitigation is the first and the last step in a jurisdiction's overall readiness, yet the impetus for mitigation does not yet come from the communities of our nation: it comes from the federal government. The federal government's enthusiasm is understandable and rooted largely and appropriately in self-interest. That which is mitigated effectively is less likely to break and therefore the cost of recovery should be

reduced by effectively targeted mitigation before the disaster and problems that have occurred as a result of disaster or are obviously clear and present risks to a community can also be addressed in the post-disaster phase.

Elected and appointed officials must make tough decisions and weigh costs versus benefits every day. To make wise policy decisions where mitigation investments are concerned, they deserve to be educated about the threats, risks, benefits, costs, and advantages as fully as possible. Recognition must be made that each local government possesses a different level of capability to mitigate, as well as different problems to mitigate. Therefore, flexibility is needed to realize one size does not fit all.

Invigorate Grassroots Participation
More effective and more accepted mitigation activity is best achieved when it is demanded by the people and communities it is intended to serve. The mitigation community must not only better connect with individual citizens and local officials; it must empower them with the knowledge and options that are present in a mitigation strategy for their communities. Total awareness of the hazards that face a community must be readily available along with the options to mitigate those hazards. Leaders and influencers at the grass-roots level of the nation should be involved and empowered for mitigation decision-making, not just informed and consulted about state or federal decisions.

One example of this type of participation is Project Impact. Project Impact was an initiative that began in 1997 and was billed as a program to help build disaster resistant communities. The program helped communities cultivate relationships between different levels of government and the private/non-profit sector in order to leverage mitigation funds for long-term cost savings. Aside from funding, FEMA provided technical support to generate media campaigns and to facilitate partnerships between government, local businesses and nonprofit groups. Starting with seven pilot cities, by 2000, the project swelled to 230 communities.

Within less than four years of implementation, 10,000 homes in Oklahoma had safe rooms protecting them from tornados. In Miami-Dade, Florida, officials installed hurricane-proofing devices like storm shutters on buildings. In the Red River region of North Dakota and Minnesota, the community used FEMA money to enlist the local public television station to create a public information campaign to teach kids about the basin and provide daily information on flood risk. When the program was eliminated, over 700 communities were set to join. While many projects funded by the program were effective, more analysis was needed to communicate the true benefits and measure the outcomes.

Emphasize Incentive, Not Punitive Mitigation Policies
Hazard mitigation often is not a "naturally occurring" phenomenon. It can be encouraged and rewarded, or it can be mandated with punishment for the non-compliant. There may be rare cases where the latter is necessary, but the former suits the culture of our nation and our citizens. Policy makers should consider funding programs designed to *reward* effective land use and building-design actions including building codes and ordinances.

Measure, Capture, and Celebrate Success
Along with some enhanced ability to measure the effectiveness of mitigation, strategies to publicize and share those successes must also be developed. Many recent scenario-based public preparedness activities involve millions of citizens and result in many individual mitigation and preparedness efforts. These types of events (no matter who hosts them) should be memorialized and publicized for broader national audiences. Exploring and designing ways to measure the long-term benefits of mitigation on non-mitigation values such as tourism, the environment, and economy would also enhance the attractiveness and justification for mitigation efforts.

Recommendations for how Congress/Federal Government can Encourage Investment in Mitigation
In order to encourage investment and promote the goals of mitigation activities on the state and local level, specific recommendations should be considered.

Better coordination between Federal Agencies with roles in mitigation
No single agency or level of government, sector of business, or individual community can achieve successful mitigation on its own. While a few professional disciplines identify hazard mitigation as a core mission area, the activities of these disciplines alone are not nearly enough to achieve effective investments and policies that protect against the hazards that lead to future disasters.

Connect Mitigation to Other Programs
Mitigation objectives for specific projects can differ among individuals, but if the same project supports multiple desired outcomes, success and achievement are increased. Opportunities where a mitigation action actually produces more important non-disaster related benefits should also be sought.

Rethink Federal Grant Structure
The current mitigation structure is centered on the federal government. Is this the way we want it to be? Should the federal government be leading the charge to persuade communities at the local level to undertake mitigation efforts? The federal government does not have to be convinced that mitigation is effective because it reduces the obligations of the federal government. States understand this, and try very hard to promote mitigation but lack the dollars to incent overwhelming mitigation adoption.

What has been missing is the commitment of local governments and local communities to demand mitigation funding, and illustrate the importance of mitigation. Those same communities must be persuaded to invest in mitigation where they have a chance, because nothing anyone can do after an event can replace or repair a building, a roads system, or an entire community and none of that can make the disruption worth enduring in the first place. The funding that comes down from the federal government must *supplement* not *supplant* the work already being done at the state and local level.

Conclusion
While the discussion of mitigation and the best road forward is filled with challenges and barriers to successful implementation of a national strategy, there are numerous opportunities for effective collaboration between all mitigation stakeholders. NEMA and our partners remain committed to advancing the message of mitigation and furthering the core goals of risk reduction and loss avoidance. Thank you for the opportunity to testify and we look forward to continuing to be a resource for this Subcommittee.

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STATEMENT FOR THE RECORD

Submitted to the House Committee on Transportation and Infrastructure

Subcommittee on Economic Development, Public Buildings, and Emergency Management

United States House of Representatives

A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters

July 24, 2012

NOT FOR PUBLICATION

UNTIL RELEASED BY THE

COMMITTEE

Introduction

Chairman Denham, Congresswoman Norton, Distinguished Members of this Committee, thank you for the opportunity to appear before you on behalf of the citizens of West Virginia and all Americans that were so affected by this devastating storm known as a "derecho." I have been the Director of Homeland Security and Emergency Management for the State of West Virginia since 2005, and previously served for twenty-two years as a ;local, county and state official dealing with numerous disasters. I can honestly report to you I have never witnessed anything of this magnitude with the impact it had on our state. The wide spread devastation this storm produced in West Virginia was without precedent.

Strategic Overview

The June 29 derecho was one of the most destructive fast-moving severe thunderstorms in North American history. This massive storm brought straight-line winds of over 100mph and traveled close to 700 miles in just 10 hours. It devastated 10 states, left over 4 million homes and businesses without electricity, and resulted in the deaths of at least 22 people.

In West Virginia, we realized almost immediately that the damage would be particularly heavy. Before 10 pm on June 29, 2012 Governor Tomblin had already declared a state of emergency for all 55 counties. I had activated the state Emergency Operations Center and Adjutant General Hoyer had activated the West Virginia National Guard Joint Operations Center and the first compliment of Soldiers and Airmen.

For West Virginia, the major impact from the storm was the loss of electrical power, which at its peak included almost 700,000 customers, or roughly 1.6 million citizens. The power outages resulted in as many as 87 Public Community Water systems going offline, as well as hundreds of

families depending on privately-owned water wells without power to pump, leaving tens of thousands of Mountaineers without water. The suffering from this lack of power and water was compounded by the record heat wave that swept the country during the outage period. With high humidity and a heat index touching 110 degrees, our most vulnerable populations were particularly at risk. The lack of power impacted much more than the comfort of an air conditioner. With most gas stations inoperable, the few that had power saw lines of over two hours long. Grocery stores lost the ability to keep perishable foods and lost most business for over a week. Pharmacies were unable to dispense badly needed medications, cell phone towers became inoperative, and at least 50% of the states hospitals were on generator power.

Immediately, we set out to coordinate one of the largest response efforts in West Virginia history. Governor Tomblin took swift action in activating the State Emergency Operations Plan and requested federal assistance as soon as the magnitude of the storm was realized. Hundreds of state employees from almost every state agency reported for duty, ready to assist their fellow citizens. At least 50% of our Division of Highways support was solely dedicated to disaster response, clearing 1846 roads and delivering fuel to all 55 counties. Our Department of Health and Human Resources activated its health command center to assist. At one time during the storm, up to 40-50 percent of the hospitals reporting were on generator power, 38 long term health care facilities were on backup power, 79 percent of the community water systems in the state were impacted by the storm and at least 146 used generators in one or more water plants. Another major issue encountered during this event was the lack of our ability to acquire oxygen for patients who used concentrators. Lack of power caused them to switch to bottled oxygen which was in short supply and local home health providers were unable to meet the demand. FEMA also assisted us in acquiring additional oxygen. I have attached a report from DHHR on their activities, however, as with many agencies; they are still gathering data from this event.

I have attached slides that give an overview of the power outages across the state and the amount of people / customers affected. I would like to discuss the overall response to this disaster by organization. This list is not all inclusive as we are still working on the final report.

Response

FEMA

The FEMA response to this disaster was immediate. From my notification to FEMA June, 30, 2012 at 3 a.m. relief supplies and personnel began arriving within six hours. FEMA established two Incident Support Bases, one in Morgantown and one with the National Guard at the 130th Airbase in Charleston, WV. These two sites had commodities and began distribution by 5p.m. on July 1, 2012. Throughout the duration of this event, FEMA personnel were extremely helpful and responsive to our needs. The following table shows commodities supplied by FEMA to supplement commodities purchased by the state and those donated.

COMMODITIES	Shipped	Received	Issued
Generators	97	97	58
Water (liters)	2,592,000	2,592,000	2,246,000
Food MRE	669,073	669,073	550,000
Infant Kits	20 kits	20 kits	13 kits

Division of Homeland Security and Emergency Management

The West Virgina Emergency Operations Center focused on immediate response determing initial impacts to the counties and their needs. Even with the large volume of communication systems not functuntioning our Statewide Interoperable Radio Network (SIREN) allowed us to have solid and reliable communications throughout the

emergency. On Saturday, June 30, 2012 we knew certain that the storm had directly and severely effected 53 of 55 counties in our state. The initial requests from the counties was to help provide emergency power to hospitals, public utilities, and establish shelters for citizens. Our office coordinated the delivery and requests for the affected counties. Our staff went above and beyond to assist our citizens and to ensure the overall response was coordinated. These "behind the scenes" workers receive little credit but do yeoman's work to care for our citizens. I thank and commend them for their hard work.

National Guard

Among the most impressive response efforts came from our citizen Soldiers and Airmen of the West Virginia National Guard. Over 700 guardsmen dispersed throughout the state to provide life sustaining supplies and even do door-to-door checks in 34 counties. They drove over 400,000 miles delivering 2.5 million bottles of water, over half a million meals, and 437,000 bags of badly needed ice. As we have come to expect from our Guardsmen, they worked 18 hour days in unbearable heat, and did so without complaint, even though most left their own struggling families in order to serve others. I want to thank General Hoyer and the men and women of our West Virginia National Guard for their dedication, hard work and commitment to the Citizens of our State, and as Governor Tomblin will tell you, they are an invaluable asset and without them states could not respond to a disaster such as we just faced.

Voluntary Organizations Active in Disaster (VOAD)

Volunteer agencies became a critical component of our response. Agencies such as the Red Cross, Southern Baptist, Catholic Charities, Citizen Emergency Response Teams (CERT) and others too numerous to mention, down to the average citizen, provided invaluable assistance to

our citizens. Many of these organizations continue to work in stricken areas to meet a variety of unmet needs.

Private Sector

The support from the Private Sector was tremendous. Many companies contributed supplies such as water and food and worked side by side with us to help distribute these to our citizens. Our interaction with agencies such as the West Virginia Oil Marketers and Grocers Association were a tremendous support system for the state. At times, when fuel became an issue due to stations not having power to pump gasoline, they were able to coordinate delivery of fuel to stations with power to ensure an uninterrupted supply. In addition, working with their members and others, they were able to coordinate the donation of supplies to those in need. Partnerships fostered through our Critical Infrastructure Program as well as personal relationships developed through years of working together helped bring this valuable resource to the table. This is just one example of the private sector stepping up to assist the citizens of West Virginia.

Critical Infrastructure

Restoration of the functions of Critical infrastructure is the key to beginning the recovery from any disaster. Loss of key resources such as water, sewer, health care and communications impacts us and has a crippling affect on our daily lives. During the course of this response, we worked with numerous health care, private and public sector entities that provided critical services to our citizens. Our priorities for providing backup power were to hospitals, nursing faculties, water and sewer plants and public safety emergency communications including 911 centers. Although many hospitals have backup generator capabilities, many will not provide power to the entire facility including their heating and air conditioning systems. Even though essential functions could be

maintained, temperatures in patient rooms and other areas of the hospitals reached unbearable levels. Many water and sewer treatment facilities did not have back up power or the necessary facilities to accept a generator without modification. In addition, many did not readily know their power needs which caused delays while assessments were done to determine the appropriate generator for the facility. Information provided by two of the major utilities that serving West Virginia show that 226 transmission lines were replaced, 1,457 transformers were replaced, 2,328 poles: and 5,030 cross arms were replaced. Current numbers show that 8,875 total personnel were involved in their response and that 1,610,400 ft of wire was replaced.

The West Virginia Division of Homeland Security and Emergency Management is partnering with the West Virginia National Guard and its Joint Interagency Training and Education Center (JITEC) to conduct power assessments on critical infrastructure along the footprint of the Bluestone Dam and we will most likely be looking at expanding this program statewide. The Guard has been trained by the U. S. Army Corps of Engineers on how they conduct the assessments and we are looking at ways to improve on that process. Once completed, all of the information will be housed in two secure data bases, the Automated Critical Asset Management System and a Corps data base so that delays in getting generators on these facilities will be minimized. As mentioned above, another issue is being able to connect generators to facilities, there is no standard plug or connection that it used and we are also planning to review as part of this process how we can improve there as well.

Conclusion

I appreciate the opportunity to share with you what we in West Virginia dealt with over the first two weeks in July. Much like the rest of the region, our response was widespread and deliberate. We have learned a tremendous amount from this event and are currently

undergoing an extensive review of the overall response effort. Under Governor Tomblin's direction, all agencies are conducting an after action review. Our Adjutant General, the Governor's chief legal counsel and I, are coordinating this review, and look forward to reporting lessons learned that can be shared among all states. We intend to look at all aspects of this event, from the utility response, public safety communications, communications with the public, logistics and citizen preparedness. Our State and our Nation have invested a tremendous amount of resources to deliberately plan our preparedness and protect our citizens. Without a doubt, our review will identify areas in which we can improve all levels of response efforts, but in West Virginia, the fact that only three deaths were attributed to this storm is significant. I am sure you join me in applauding the selfless efforts of the men and women of West Virginia whose willingness to serve, volunteer, and respond on behalf of their fellow citizens is a testament to Mountaineer pride, and a credit to this great Nation. I would be remiss if I did not take this opportunity to thank all of our first response community at all levels, but especially West Virginia's First Responders and all of the men and women of the various state agencies that worked countless hours to take care of our citizens. To conclude, I wish to thank all of you for your invitation to appear before you today, and for your continued support of our Nation's first responders and the National Guard, which has been vital to our Nation in sustaining our all volunteer military through an unprecedented period of continuous combat operations, while simultaneously providing us with an unparalleled response capability here at home as well. Mr. Chairman, members of the committee, I thank you again for your time and hospitality.

A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters

Written Statement of

Chief Hank C. Clemmensen
First Vice President

presented to the

SUBCOMMITTEE ON
ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS
AND EMERGENCY MANAGEMENT

OF THE

COMMITTEE ON TRANSPORTATION AND
INFRASTRUCTURE

U.S. House of Representatives

July 24, 2012

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS
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Good morning, Chairman Denham, Ranking Member Norton, and members of the subcommittee. I am Chief Hank C. Clemmensen of the Palatine Rural Fire Protection District located in Inverness, Illinois, and the 1st Vice President of the International Association of Fire Chiefs (IAFC). The International Association of Fire Chiefs represents the leadership of the nation's fire, rescue, and emergency medical services (EMS), including rural volunteer fire departments, suburban combination departments, and metropolitan career departments. I thank the committee today for the opportunity to represent the views of local firefighters and EMS responders in the review of model building codes and mitigation efforts and how they help to minimize the costs associated with natural disasters.

Despite recent progress, America still suffers from one of the worst fire problems in the civilized world. In 2010, there were more than 1.3 million fires in America, which resulted in the deaths of more than 3,100 Americans and more than 17,000 injuries.[1] The economic cost of these fires is equally compelling. For example, the National Fire Protection Association (NFPA) estimates that the economic loss due to fires in 2009 (direct and indirect, unreported and reported) was $16.1 billion.[2] When one factors in the total cost of economic and human losses, and the cost of provisions to mitigate or prevent the cost of fires, including fire departments, fire protection equipment and construction, and insurance, the total cost of fire in 2009 was $331 billion.[3] This amount was equal to 2.3 percent of the U.S. gross domestic policy in that year.[4]

Model commercial and residential building and fire codes serve as a key way to mitigate the damage done by fires and other events, including winds, rain, and earthquakes. Using a consensus-driven process, they are designed by fire protection officials, engineers, architects, construction experts and all other interested parties to protect both people and property from human-caused events or natural disasters. These codes provide basic requirements for the construction and design of a structure and fire prevention requirements for the building before it is occupied. The fire service participates in the development of these codes to make sure that modern construction is safe both for the public and first responders.

The fire and emergency services know that model commercial and residential building and fire codes will help prevent the tragic loss caused by extreme weather and natural disasters. For example, the World Bank reported that the "1988 earthquake in Armenia had half the energy release of the 1989 earthquake in Loma Prieta near San Francisco, California, and yet caused 25,000 deaths compared to 100 in San Francisco.[5]" In 2003, similarly powerful earthquakes occurred in Bam, Iran and Paso Robles, California. The earthquake in California killed two people, while the one in Iran killed 41,000. The World Bank reported that the "strict adherence to tough zoning and building codes" in

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[1] http://www.usfa.fema.gov/statistics/estimates/nfpa/index.shtm.
[2] John R. Hall, Jr., *The Total Cost of Fire in the United States*, National Fire Protection Association, February 2012, p.iii.
[3] Ibid.
[4] Ibid.
[5] Charles Kenny, *Why Do People Die in Earthquakes? The Costs, Benefits and Institutions of Disaster Risk Reduction in Developing Countries*, The World Bank, January 2009, pp. 2-3.

California was responsible for the lives saved.[6] In addition, the Institute for Business and Home Safety (IBHS) found that the adoption of high wind provisions in residential buildings reduced damage to houses in Florida. After Hurricane Charley in 2004, the claim frequency for houses built after 1996 (when Charlotte County, Florida, enacted high wind standards) was reduced by 60 percent and the claims were 42 percent less severe when a loss occurred.[7]

Unfortunately, some jurisdictions do not adopt model building codes or update them until after a disaster occurs. In Illinois, there was a greater focus on adopting sprinkler codes for schools after the Our Lady of Angels fire in 1958. Sadly, more than 90 students and teachers perished in that fire before sprinkler codes were changed.

The IAFC believes that H.R. 2069, the Safe Building Code Incentive Act will encourage states to adopt the most current commercial and residential building codes proactively. States that adopt these model building codes will receive an additional four percent of the funding available for post-disaster hazard mitigation. This funding is dispensed under the Hazard Mitigation Grant Program (HMGP), which is designed to help state and local governments implement long-term hazard mitigation efforts after a major disaster declaration. By adding the incentive to the HMGP, Congress will create a virtuous cycle in which states receive more funds to take the necessary steps to protect their citizens.

As the subcommittee begins to consider this legislation, we would like to raise three points for your consideration:

1) **States should not be able to opt out of -- or reduce provisions to -- model commercial and residential codes and still receive the four percent bonus.** To qualify for the four percent incentive, states should be required to adopt the whole model code and not be allowed to opt out of any of the substantial code requirements. For example, the 2009 edition of the International Residential Code (IRC) included a requirement for residential sprinklers. Many states opted out of this particular requirement, when they adopted the 2009 IRC.

   The IAFC is greatly concerned about this decision. There is clear evidence that fire sprinklers save lives. According to the NFPA, sprinklers operated effectively in "88 percent of reported fires where sprinklers were present in the fire area and the fire was large enough to activate sprinklers.[8]" A report by the city of Scottsdale, Arizona, which passed a residential fire sprinkler ordinance in 1985, found that one or two sprinkler heads "controlled or extinguished the fire 92 percent of the time, with the majority of the exceptions a result of flammable

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[6] Ibid.
[7] *"Hurricane Charley: Natural Force vs. Structural Strength,"* Institute for Business and Home Safety, 2012, p. 5.
[8] John R. Hall, Jr. *U.S. Experience with Sprinklers, National Fire Protection Association,* March 2012, p. i.

liquid incidents.[9]" Because of their effectiveness, the U.S. Fire Administration recommends the installation of fire sprinklers in residences.[10]

The decisions by some states to opt out of the residential fire sprinkler requirements in the 2009 IRC presents a serious problem for public safety. According to the U.S. Fire Administration, 66 percent of all civilian fire injuries from 2008 to 2010 occurred as a result of fires in residential buildings.[11] So, the decision to opt out of the residential fire sprinkler requirement will do nothing to mitigate two-thirds of the casualties caused by fire.

2) **Local jurisdictions should be allowed the latitude to adopt more stringent building and fire codes than the state minimum model code requirements.** Especially in large states, the various regions in a state may face different threats. For example, the wind resistance requirements for buildings in south Florida and the Panhandle vary, because of the threat of hurricanes. When considering a state's commercial and residential model codes as described in H.R. 2069, we urge the President to make sure that the codes are a minimum requirement, so that local jurisdictions have the ability to strengthen their requirements to address local hazards.

3) **The legislation should include model commercial and residential building codes and fire codes.** Both building codes and fire codes work together in tandem. In many communities, a building code addresses the design and construction of a building, while the fire code addresses the specific life safety hazards associated with the use of the facility. The adoption of both commercial and residential building codes and fire codes at the state level will ensure that there is a minimum level of fire protection in local communities across the nation.

On behalf of the leadership of America's fire and EMS departments, I would like to thank you for the opportunity to testify at today's hearing. The IAFC believes that model commercial and residential building and fire codes play an important role in mitigating the dangers of fire and other natural disasters. H.R. 2069 is an incentive-based and cost-effective proposal to protect homes and improve the safety of the American public and first responders. We urge the Congress to consider this legislation, and look forward to working with the subcommittee. I am available to answer any questions that the subcommittee may have.

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[9] Assistant Chief Jim Ford, *Automatic Sprinklers: A 10 Year Study: A detailed history of the effects of the automatic sprinkler code in Scottsdale, Arizona,* Rural/Metro Fire Department, Scottsdale, Arizona, 1997, p. 4.

[10] http://www.usfa.fema.gov/about/position_statements/sprinklers_position.shtm.

[11] http://www.usfa.fema.gov/statistics/reports/casualties.shtm.

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TESTIMONY

A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters

before the

House Transportation and Infrastructure Committee
Subcommittee on Economic Development, Public Buildings and Emergency Management

by

Chad Berginnis, CFM
Executive Director
Association of State Floodplain Managers

July 24, 2012

Introduction

The Association of State Floodplain Managers (ASFPM) is very pleased to offer our thoughts related to the value of hazard mitigation to the nation as it relates to reducing natural disaster costs and specifically offer our recommendations as they relate to building codes. We thank Chairman Denham and Ranking Member Norton for your attention to the importance of hazard mitigation and specifically how building codes factor into the mix of mitigation tools that can be used. ASFPM's members are the country's practitioners who work with flood hazard mitigation programs, land use, and building codes on a daily basis. Given that flooding is the nation's primary natural hazard and that ASFPM's mission is to reduce flood losses in the nation, we commend the committee on its leadership in examining this important issue.

Our testimony will discuss the following key issues:

- The rise of disaster losses in the nation
- The nation's need for a coherent, robust and multi-faceted mitigation effort to reduce disaster costs
- Mitigation as an investment of taxpayer funds to save taxpayer funds
- The effectiveness non-structural mitigation tools including building codes

About ASFPM

ASFPM and its 33 Chapters represent over 14,000 state and local officials and other professionals who are engaged in all aspects of floodplain management and hazard mitigation, including management, mapping, engineering, planning, community development, hydrology, forecasting, emergency response, water resources, and insurance for flood risk. All ASFPM members are concerned with working to reduce our Nation's flood-related losses. For more information on the Association, our website is: http://www.floods.org.

Disaster Losses in the Nation Continue to Rise

2011 was record-setting year in the United States. Data indicates that 2011 resulted in at least $10 billion in flood damages. This is consistent with more recent trends showing an increase in annual flood damages in the previous few decades. In the 1990's damages averaged $5.6 billion per year while in the 2000's this figure jumped to $10 billion per year. In 2011, the nation experienced 14 disasters from natural hazards (floods, earthquakes, hurricanes, wind and wildfire) in which costs each exceeded $1 billion, and President Obama issued a record 99 major disaster declarations. According to data from global insurer Swiss Re, global disaster losses in 2011 were a record $350 billion and six disasters events in the US were among the top ten costliest worldwide for insurers.

However, this is neither unanticipated nor is it as bad as it could get. While the hurricane seasons of 2004 – 2005, including Katrina resulted in unprecedented losses and strains on our programs to facilitate disaster recovery, including the nation's first $100 billion natural disaster, larger events can and will occur. Consider:

- Modeling shows that a category 3 hurricane hitting the New York City area could produce a storm surge of over 20 feet in some areas, flood local airports and lower Manhattan, and result in severe economic disruption.
- Experts have estimated that an earthquake in San Francisco of the same magnitude as the 1906 earthquake could cause as many as 3,400 deaths, displace up to 250,000 households, and cause as much as $120 billion in property damage.
- The ARkStorm scenario modeling for the Sacramento area based on a scientifically realistic flood event, similar to that which occurred in California in 1861 and 1862, indicates that three quarters of a trillion dollars in damage (business interruption costs of $325 billion in addition to the $400 billion in direct property loss) would occur if that event happened today.

Additionally, population trends and climate change are increasing the nation's vulnerability. As the costs of disasters continue to rise, governments and citizens must find ways to reduce risks from all hazards, but especially natural hazards.

What are the Costs to the Taxpayer?

The US Government is generous when it comes to disaster assistance following losses due to natural hazards. However, to get the total federal costs is rather difficult to calculate because of the large number of Federal agencies involved. One of the underlying philosophies of emergency management in the United States is while an agency like FEMA serves as a lead coordinator, each agency is expected to address disaster response and recovery aspects of their programs. So, many programs throughout the Federal government have this function.

- **Disaster costs in the nation continue to increase. Many factors contribute to this but a key strategy to reduce losses is to invest in hazard mitigation. ASFPM respectfully suggests that this Committee request a compilation of data from other federal agencies and programs.**

The Nation Needs a Coherent, Robust and Multi-Faceted Mitigation Effort to Reduce Disaster Costs

Hazard mitigation means taking a sustainable action to reduce or eliminate long-term risk from hazards and their effects. A variety of mitigation tools exist that can reduce the risk of losses from natural hazards. Typically, these activities (tools) are arranged in five different categories:

1. Prevention: These activities are intended to keep hazard risk problems from getting worse, and to ensure that future actions do not increase hazard losses. Examples include planning, zoning, and building codes.
2. Property protection: These activities are intended to modify existing development subject to hazard risk. Examples include acquisition/demolition, elevation, relocation or retrofitting of existing buildings. These are the primary activities funded by FEMA mitigation programs.
3. Natural resource protection: These are activities intended to reduce intensity of hazard effects as well as improve the quality of the environment for people and wildlife. Examples include wetlands restoration, buffer zones, setbacks, easement purchases and forest management practices (effective for flood and wildfire).
4. Emergency Services: Activities to ensure continuity of emergency services – not the deployment of emergency services during or after an event. Examples include critical facilities protection (hospitals, power and water supply, etc) to a high standard so these facilities are operational and accessible during extreme events.
5. Structural measures: Activities include development of large, highly engineered hazard reduction structures. Examples include levees, dams and debris basins.

The ASFPM is a leading advocate in the nation for the promotion of non-structural flood loss reduction measures, while recognizing that we must have all available mitigation tools at the ready to address complex flooding problems. Non-structural measures focus on making existing and future development more resilient to flooding or to preserve (restore) floodplain functions so that existing developed property will experience less damage or at least not increased flooding.. Techniques such as planning, zoning, building codes, acquisition and relocation of flood prone structures, and stream restoration that modify human development and restore natural systems are considered non-structural, while structural measures include highly engineered solutions such as dams, levees, and floodwalls that modify natural riverine and coastal systems. Further, ASFPM believes that integration of structural and non-structural mitigation approaches can be very effective. For example, dams, channels and levees often are built to contain river flows, but these structures cut off human access to the river and can result in catastrophic damage when the structures are breached or overtopped. A more balanced approach would be to build the levee but site it farther away from the river, allowing more space for natural conveyance and storage of flood waters and less stress and erosion of the

levee. Then, this protection would be supplemented with additional non-structural techniques such as purchasing and removing buildings that are too close to the water, requiring other buildings to follow strict building codes, and requiring the purchase of flood insurance by those who occupy the area behind the structure where residual flood risk remains. Flood insurance is the only means to provide financial protection to the homeowners single largest investment—their home.

Hazard mitigation is performed year around. Planning is done continually, building and land use codes are administered and enforced every day, and property protection / structural measures occur when the need arises. Some tools like FEMA mitigation projects are very effective after a disaster event because property owners are more receptive to mitigation actions. Similar are building codes; however, there can be community reluctance to enforce the codes and/or a much greater willingness to relax the building standards after a disaster. While communities think this helps property owners recover, in reality, it simply sets them up to experience the same disaster again.

While mitigation needs to be woven throughout the nation's emergency management system's other major components: preparedness, response and recovery, hazard mitigation is also its own element and organizationally needs to be recognized as such. ASFPM remains concerned that within the Department of Homeland Security, and to a lesser extent FEMA, hazard mitigation has not become a robust element in the overall way we address natural hazards in this country. Efforts, for example, to eliminate programs such as Pre-Disaster Mitigation and merge them with terrorism preparedness programs are shortsighted and reflect a fundamental lack of understanding of the importance and need for strong promotion of natural hazard mitigation.

- **ASFPM applauds FEMA's efforts to better define hazard mitigation through the creation of the mitigation framework and operational plans through PPD-8; however, also cautions that mitigation cannot solely be viewed through a preparedness lens and that ultimately PPD-8 is for a national preparedness program in the nation. ASFPM supports FEMA's effort to weave mitigation throughout all the PPD-8 Frameworks.**

There are several support services or systems upon which non-structural mitigation decisions and policy depends. As mentioned before, hazard mitigation is a year around commitment by both states and communities. Yet there is no provision for dedicated, ongoing funds for hazard mitigation at the state level except for state management and administrative costs when a project is awarded by FEMA. There is still a gap where there is a need to build state capability to manage and oversee mitigation efforts.

- **A partnership arrangement should be developed and modeled after the NFIP's Community Assistance Program, but strengthened to allow for the development of permanent state capability to implement and manage hazard mitigation programs. Such a partnership could include incentives (cost-shared funding) and disincentives (state eligibility for disaster assistance programs) to ensure the state develops and maintains long-term capability.**

Another of these support systems is the continued provision of flood data. The risk assessment portion of a mitigation plan depends on flood maps and detailed flood elevation data to assess where hazards exist and to what extent they will affect an area. Flood mitigation projects depend on these data to determine cost-effectiveness and formulate the proper mitigation solution.

- **Federal hazard mitigation programs should recognize the importance of streamgaging and flood hazard mapping and ensure that National Flood Mapping Program and the USGS National Streamflow Information Program (NSIP) are fully resourced to authorized levels.**

- **ASFPM is concerned about the recent effort by FEMA to utilize a new THIRA approach that appears to substitute high quality hazard data with more subjective criteria when developing risk assessments in communities. This method appears to not be a scientifically sound approach and could result in very misleading data upon which a community is making decisions. Even more concerning is the lack of alignment of grant funding criteria for natural and terrorism hazards which we are being told will not allow funding for natural hazard mitigation if the grant funding is combined (because all grants must be tied to terrorism).**

Mitigation is an Excellent Investment for Taxpayers and Property Owners

Natural hazard mitigation saves money. Mitigation represents a societal investment, not a cost. The benefits of this investment are clearly evidenced in several ways:

- Averts loss of life and injury to people.
- Reduces damages to public and private property.
- Lessens expenditure of resources and exposure to risk for first responders.
- Reduces costs of disaster response and recovery.
- Accelerates recovery of communities and businesses affected by disasters.
- Enhances community resiliency.

An investment now will continue to pay dividends year after year into the future.

The most widely cited study on the cost effectiveness of hazard mitigation was conducted in 2005 by the Multi-Hazard Mitigation Council of the National Institute of Building Sciences. It showed that a dollar spent by FEMA on its hazard mitigation programs provides the nation with $4 in future benefits. For flood disasters, benefits were $5 for every $1 invested. In another study, FEMA estimated that the NFIP's standards for new construction are now saving an estimated $1.2 billion annually in flood damage avoided. These standards are a combination of building and land-use requirements. FEMA projects that if buildings built prior to current building code standards were mitigated to just minimum NFIP standards, flood damage would be reduced by 80%.

A lesser known study shows the cost effectiveness of building standards that exceed the minimum standards of the NFIP. In this study, as part of the comprehensive evaluation of the NFIP completed by the American Institutes of Research in 2006, it was shown that incorporating extra "freeboard" was extremely cost effective when new buildings in flood prone areas are constructed. (Freeboard is a level above the 100-year base flood elevation (BFE) that the lowest floor of a building is constructed to as an extra protection measure). At present, about half of the 22,000 NFIP participating communities have 1,2 or 3 foot freeboard standards. The cost of extra freeboard is very small (.25% - 1.5% per extra foot of the at BFE building cost for masonry type foundations) and for many buildings this extra cost can be recouped from flood insurance premium reductions alone. For some buildings, the full cost can be recouped in as little as 1-2 years. Not only do owners receive a discount on flood insurance premiums, they have significantly reduced their risk of property damage due to flooding and given themselves a buffer if flood conditions change. With better building standards, property owners are more resilient at minimal costs, community response and recovery costs are lessened, and the cost to the federal taxpayer is minimized though the decreased need for disaster assistance.

Effective Non-Structural Mitigation Tools: Mitigation Grant "Project" Programs

Many of the high risk flood areas of the nation include existing, older construction. Buildings may not be elevated to protect against flooding or were constructed using masonry methods that fall short of modern earthquake codes. Older stormwater management systems often combine sewage and stormwater and/or do not have capacity to handle the volume of development or intense precipitation events. Essentially, these buildings and infrastructure were constructed before modern codes were published establishing any type of standards related to natural hazards. For the older "built" environment, the mix of mitigation tools that are most effective include comprehensive and hazard specific planning, technical assistance, mitigation grant programs, structural measures and hazard insurance.

Mitigation Success Story – Arnold, Missouri Buyout Project

The Shrinking Cost of Flood-Fighting in Arnold, Missouri

	1993 Flood	1995 Flood	May 2002 Flood
Sandbagging sites in Arnold	60	3	0
FEMA Public Assistance to Arnold	$1,436,277	$71,414	$0
Applications from Arnold for Individual Assistance	52	26	1

After the 1993 Mississippi River flooded hundreds of homes and caused several million in damage in Arnold, Missouri (pop. 19,965), the city had purchased over 202 homes and 155 sites for mobile homes by the end of 1995. A combination of FEMA, CDBG, and other funding sources was used. By 2008, over 322 homes had been acquired. When flooding occurred that year, a total of $12,000 in damages resulted. As part of the buyout process, buildings were bought, demolished, and the remaining property was deed-restricted as open space. Arnold has repeatedly flooded with similar sized floods since 1993; however, now flooding is mostly an inconvenience, and the long term cost to the U.S. taxpayer is essentially zero. The key to the success of this project and ongoing minimization of taxpayer cost was the permanent deed restrictions on the acquired properties.

Both pre-disaster and post disaster mitigation programs are important. Pre-disaster mitigation allows ongoing mitigation activities outside of a disaster scenario. It is the key tool for communities which do not often suffer declared disasters. The New England states, for example, indicate that pre-disaster mitigation is essential to their loss reduction efforts and resulted in significantly reduced losses from Hurricane Irene. The state and local disaster mitigation plans required by this Committee in the Disaster Mitigation Act of 2000 led to enhanced effective use of the Hazard Mitigation Grant Program (HMGP) after declared disasters. Better integration of HMGP in the response and recovery phases is needed, but post disaster mitigation takes advantage of greater openness to mitigation options following disaster-related damages.

Mitigation grant projects are an important tool used across the country, especially in older communities that have existing inventories of older at-risk buildings and infrastructure. Demand for these programs continues to far exceed available resources. A poll of State Hazard Mitigation Officers found that demand ranges anywhere from 3 to 10 times the available funds.

- **ASFPM believes that cost-shared , pre and post disaster mitigation grant programs and projects must continue to be part of the nation's toolbox to reduce losses and costs from natural hazards**

Effective Non-Structural Mitigation Tools: Technical Assistance

Another effective mitigation approach in the "built" environment is technical assistance. FEMA's mitigation programs, as well as some programs from the United States Geological Survey, the US Army Corps of Engineers, the National Park Service, the Fish and Wildlife Service and the Natural Resource Conservation Service can help local mitigation managers be successful. For example, FEMA's Community Assistance Program (CAP) is funded from within the NFIP but provides funding to states to provide technical assistance to over 22,000 communities that participate in the NFIP. Similarly, FEMA's National Dam Safety Program provides funds for technical assistance and training. The US Army Corps of Engineers has several technical assistance programs including Floodplain Management Services (FPMS), Planning Assistance to States (PAS), and Silver Jackets. Still the sum of all of these technical assistance programs is quite small especially compared to the larger grant and construction project programs, yet demand is quite high. The Small Business Administration allows for hazard mitigation under its disaster loan programs but they are not well known.

- **Modest but effective technical assistance programs should be expanded to better educate and provide assistance to communities and the public regarding hazard mitigation opportunities and options.**

Effective Non-Structural Mitigation Tools: Hazard Insurance

Hazard insurance is also an essential mitigation tool. It is effective for both old and new construction; however, it is vitally important for at-risk older development. Hazard insurance has several benefits including: Mitigating economic losses and reducing disaster payouts, raising awareness of the presence and severity of a hazard, ensuring that those at risk pay to mitigate their own economic losses, reducing potential liability and litigation expenses, and rewarding policyholders and communities who take additional steps to reduce vulnerability.

Just a few weeks ago, the Congress passed reforms to the National Flood Insurance Program (NFIP), including removal of subsidies within the program. The provision of insurance through the NFIP involves the "quid pro quo" of community adoption of floodplain management ordinances which address both land use and building standards. ASFPM believes that the removal of subsidies within the NFIP will push property owners and communities to explore other mitigation options making both technical assistance and mitigation grant programs even more important than they are now.

As part of the debate preceding the passage of the bill there was much discussion on how to handle "residual risk" areas. While there is no official definition, ASFPM believes these areas to generally be those that have some element of risk, usually behind a levee, or downstream of a dam – either in areas that would be inundated from releases through emergency spillways or in failure zones.

As our nation's infrastructure ages and development increases, it is important to know where these areas are, and how to minimize both the financial risk and risk for injury/loss of life.

Effective Non-Structural Mitigation Tools: Planning and Other Land Use Measures

Mitigation tools such as planning, building codes and other land use measures are most effective in addressing the "unbuilt" environment, or future development. Dealing with future development is essentially a process of deciding where and how to build. Communities have the authority to lead this decision making process. So that communities do not succumb to disasters, they must become resilient and sustainable. The key to sustainable and resilient communities is where and how development takes place. There "where" is land use planning and the "how" is good building and development codes. Both are important but start with land use. Smart development in dumb places is not sustainable.

Communities have long recognized that some areas are not appropriate for uses that would be costly to repair or replace such as homes and businesses, or critical uses, such as emergency operations centers, hospitals, or centers for local governments. In this way local land use, zoning, and development review help assure that new growth is sited appropriately and that communities are more resilient, less dependent on federal assistance, and more likely to recover completely from a flood.

Planning for flood risk reduction has been propelled into greater prominence as a result of the Disaster Mitigation Act of 2000. Before the planning requirements of the Disaster Mitigation Act, local mitigation projects were often implemented in a haphazard way and without coordination with any type of local plans. The mitigation planning now required at least forces entities wishing to implement FEMA mitigation projects to do so in the context of a larger community plan. Still, more can be done.

The planning process and plan elements required by FEMA as part of these mitigation plans are robust and should ensure plan longevity. All communities and states have either developed plans and will be facing the need to revise them, are just beginning to plan, or have not yet done so.

- **Developing plan update guidance should be a high priority for FEMA. Such guidance should generally take the view that planning and updating mitigation plans is an iterative and long term process—while encouraging continuous improvement of the plans, the bar should not be set at an impossibly high level.**

- **An independent evaluation of state and local hazard mitigation plans should be conducted, to determine whether they are actually guiding local hazard mitigation activity or are merely shelved once the requirement is fulfilled, and determine what changes in the planning standards, processes, and guidelines are necessary.**

The amount of mitigation planning that has been achieved nationally over the past decade has been significant. As planning itself is an iterative process, ASFPM believes that the plans should get better and become more effective over time. However the mitigation community in the nation is concerned about the Administration's recent budget to zero out the Pre-Disaster Mitigation (PDM) program. PDM is a significant source of mitigation funds for mitigation planning that is not redundant to other sources that may only be available after a declared disaster. In fact, over half of the states do not have disasters declared frequently enough to use the Hazard Mitigation Grant Program as an alternative source for mitigation planning assistance.

Another area that needs strengthening is land use, planning, and development standards for roads and similar infrastructure. While the US Dept. of Transportation may have standards to ensure high capacity roadways are resilient such as the Interstate highway system, at the state and local levels, no consistency of standards exists and the nation is paying to repair and replace these structures over and over again through disaster assistance funding.

A 2005 report by the American Lifelines Alliance in partnership with ASFPM and the American Public Works Association developed five case studies of counties to document decision–making factors and processes used to address flood risk in managing local road systems, and to identify effective practices for mitigating flood impacts. It concluded that rural road departments are constrained by limited resources, expertise, and staff, that consistency in post-disaster assistance was needed, that there were a wide range of state requirements that are specific to flood resistance and road construction and reconstruction, and that road departments are generally open and willing to learn about new and effective approaches. The report made several recommendations including the development of a Model Manual of Flood Mitigation Guidance for Local Road Systems among others.

Effective Non-Structural Mitigation Tools: Building and Development Codes

While the first building codes appeared in the United States in the 1650s, it wasn't until the early to mid nineteenth century that national model codes were established. The first national code to include seismic provisions was published in 1927. Since that time, building codes have become much more common across the United States. In the 1990's the three leading code groups came together to form the International Code Council and created the first International Building Code (IBC) in 1997 and International Residential Code in 2000. This was meant to be the single-consensus based code to be used in the country. However, the National Fire Protection Association, which initially participated in the IBC process, ultimately chose to develop an alternative set of consensus codes and standards.

In the past two decades, "green building practices" have emerged. The term "green building practices" commonly refers to products or practices implemented to achieve a level of environmental

performance above a minimum or traditional design. These are generally practices that are assigned credit under a green building rating system. The term "sustainable building design" refers to a broader concept that includes sustainability principles and considers and addresses risks associated with natural hazards. Sustainable building design concepts are increasingly being incorporated into residential building design and construction through the green building rating systems, but much work remains to be done. In fact, one cannot assume just because a jurisdiction adopts a green building code, or that a certain building is certified as a "green" building that it has actually incorporated the necessary standards to withstand natural hazards to which it is subjected.

For example, the major national green building standard for both new and existing buildings is the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program. LEED is a set of voluntary, consensus-based, national standards for constructing sustainable buildings, including site selection and design, durability, maintenance and system efficiency. But, LEED itself does not require compliance with any building code. Many jurisdictions in the U.S.—including some in disaster-prone regions such as the Gulf Coast and the New Madrid Seismic Zone—do not have adequate building codes, meaning that it is possible to obtain LEED certification and not even address life safety criteria, much less long-term durability. At the same time, LEED is to be commended for elements such as not allowing building on lands below the 100-year floodplain as a way to increase disaster resilience.

Issues and Policy Considerations Related to Building Codes

While ASFPM strongly supports building codes as one mechanism to mitigate the effects of natural hazards, it is important to have a realistic perspective of how they are adopted and administered currently so that any new policies are effective.

The first issue is the voluntary nature and wide variability of building code adoption – if they can be adopted at all. Periodically, ASFPM evaluates state and local floodplain management programs, most recently in 2010. State Floodplain Managers indicated that 76% of states had adopted building code. 46% of the states that do not require local jurisdictions to administer a building code do allow communities to adopt a building code of their choice. Even when building codes are adopted in a state, the consensus based approach means that critical provisions could be omitted from the state code entirely.

Ohio serves to illustrate these points well. The State of Ohio has adopted the International Codes. In fact, they are required in all communities for all 3+ family residential, commercial and industrial buildings. However, the Ohio residential code is optional in communities for 1-3 family dwellings. Furthermore, in 2012, when the Ohio Residential Code was updated, "controversial" provisions of the International Residential Code were omitted, and at the urging of builders, the new code provides contractors two ways to meet new energy requirements: either by following the

International Code Council guidelines or by following an alternative set of guidelines designed by builders to achieve the same energy efficiency.

State adoption does not necessarily equal local adoption of codes, or enforcement of codes. Over the past 25 years, FEMA has deployed Mitigation Assessment Teams (MATs) after major natural disasters to better understand how and why buildings have failed from natural hazards. MAT reports have historically found that construction often does not meet the level of performance targeted by model building codes. Whether this is a deficiency in the code or lack of enforcement is not known, however the MAT report after Hurricane Ike indicated that residential buildings without adequate elevation, proper construction, and proper foundation selection were found to have widespread failures. Anecdotally, many local floodplain managers indicate that code enforcement can be difficult. Everything from political pressure, misuse of the variance process, to inadequate legal counsel can impact a community's ability to enforce its regulations. One way to measure building code enforcement is The Building Code Effectiveness Grading Schedule (BCEGS®) which assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards.

An analysis of the related BSEGS data shows a slowing trend of community-level code adoption — even during the construction boom. In 2002, the year before code groups published the 2003 code, 90 percent of departments adopted the 2000 code. In 2005, the year before the industry published the 2006 code, 50 percent of departments had moved to the 2003 code. Then in 2008, the year before the industry published the 2009 code, slightly more than 40 percent had moved to the 2006 code. It appears that just 30 percent of code agencies will adopt the 2009 code before the publication date of the next edition.

ASFPM Thoughts on the Effective Use of Building Codes in Hazard Mitigation:

Model codes are consistent with minimum national standards, but do the standards achieve the needed amount of loss reduction? There is evidence of the value of building codes in the historical data from the NFIP through which some communities have been enforcing building standards for over 40 years. Also, the flood provisions in the model building codes are consistent with the NFIP standards. However, the minimum standards of the NFIP have not been updated in over 25 years – and much loss experience has been learned. Also, the nature of flood risk is changing. Are these minimum standards enough? ASFPM believes that steps should be taken to encourage (incent) states and/or communities with unique hazards or long term vision to implement standards beyond those found in the International Codes. ASFPM has several detailed recommendations on how to strengthen the NFIP minimum development standards, from increasing freeboard to critical facility construction.

Both incentives must be created and perverse disincentives must be eliminated. As part of the 2006 evaluation of the NFIP, one line of inquiry related to compliance with the minimum standards

of the program. It was determined that participation in the Community Rating System (an incentive program that gives discounts of up to 45% of flood insurance policy premiums) did not affect the overall compliance rate with floodplain management standards (research showed that 63% of buildings were fully compliant). However, that doesn't mean incentives don't work – but they must be carefully crafted. A more effective approach, ASPFM believes, is using both incentives and eliminating disincentives. For example, if a jurisdiction hasn't adopted a building code with natural hazard resiliency provisions, should they even be eligible for programs such as HMGP, Public Assistance, or disaster assistance in general? If a community has adopted and is enforcing such a code, should they be the ones to receive the extra incentive? The way our nation's disaster assistance programs are set up today, communities and states get rewarded for doing little to nothing to increase their resiliency. Another incentive idea is to implement a sliding cost share for rewarding those communities doing the right thing, whether for hazard mitigation funding or even disaster relief.

Local capacity (enforcement training, etc.) is key to successful implementation of building codes. Due to the way many building departments are funded, the economic downturn has had a significant impact on local capacity. Many budgets rely on revenue generated by permit fees. Slower construction since 2008 has resulted in significant downsizing of local building departments. There is also concern about increased building costs, so it is understandable that enforcement can be challenging in difficult economic times. Evidence indicates, however, that increased building costs are actually quite minimal while the savings can be significant in damages avoided. It is important that the federal government (taxpayers) not be providing incentives for communities to make decisions for short term economic gain that results in greater long term costs, especially to the federal taxpayer for future disaster relief and recovery. Having a building code is important, but it must be enforced to be helpful. Enforcement training and education for code officials and builders would promote effective enforcement.

It is encouraging that the recently passed flood insurance reform legislation (as part of MAP21), authorizes use of Community Development Block Grant (CDBG) funds for building code administration grants to educate, formulate, implement and enforce local building codes over the next two years. ASFPM has long supported these types of training and education efforts.

The challenge of jurisdictions that do not have the authority to adopt and enforce building codes needs to be addressed. There is no guarantee that when a state adopts a building code, a community will follow suit. Even worse, some communities have neither the authority to adopt or enforce building codes. This should operate as an incentive for states to grant this authority to all jurisdictions, (counties, cities, parishes, etc.) Incentives are key—either for cost share or priority for funding. It is difficult to provide incentives for states with codes, since over half do have them —this may be an instance where disincentives for having no code are appropriate.

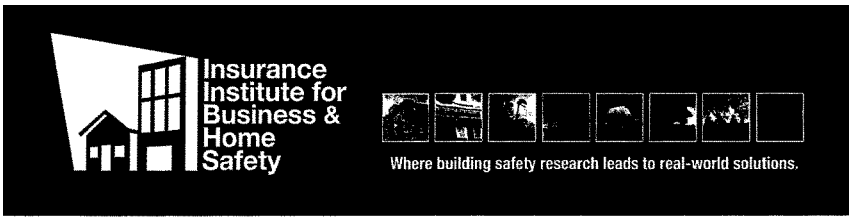
ASFPM appreciates the Committee's interest in encouraging adoption and enforcement of statewide building codes. H.R. 2069, The Safe Building Code Incentive Act, is a good step in the right direction through offering an incentive for adoption and enforcement of nationally recognized building codes. It has the dual benefit of both encouraging effective use of building codes and providing additional funds, through the Disaster Relief Fund, for mitigation activities. We do suggest that, to be more effective, the legislation define what is meant by "statewide", making clear that the term includes all buildings and all local jurisdictions.

Conclusion

An article on global disasters from the January 14, 2012 edition of The Economist was titled "Counting the Costs of Calamities: Death rates from natural disasters are falling; and fears that the have become more common are misplaced. But their economic cost is rising relentlessly." This has certainly been the trend in the United States as well.

The good news is that over the last few decades, we have developed and tested various mitigation tools and have proven that they work. Given the increasing costs of natural disasters, the predictions for more frequent and more severe storms and weather conditions, and the severe budgetary constraints the nation faces, getting effective mitigation accomplished is essential.

The Association of State Floodplain Managers appreciates this opportunity to share our observations and recommendations with the Subcommittee. For any further questions on this testimony contact Chad Berginnis, ASFPM Executive Director at cberginnis@floods.org (608) 274-0123 or Meredith Inderfurth, ASFPM Washington Liaison at (703) 448-0245.



Testimony of Julie A. Rochman, President and CEO of the Insurance Institute for Business & Home Safety (IBHS)

Before the U.S. House of Representatives
Committee on Transportation and Infrastructure
Subcommittee on Economic Development, Public Buildings and Emergency Management

RE: H.R. 2069, the Safe Building Code Incentive Act
July 24, 2012

Chairman Denham, Ranking Member Norton, and members of the Subcommittee, thank you for the opportunity to speak with you today regarding the importance of the enactment and enforcement of strong statewide building codes.

The Insurance Institute for Business & Home Safety (IBHS) is a 501(c)(3) organization, wholly supported by the property (re)insurance industry. IBHS' mission is to conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses, and communities against natural disasters and other causes of loss. IBHS does this by conducting research and advocating improved property design, construction, maintenance, and preparation practices.

The centerpiece of our research program is the IBHS Research Center in Chester County, South Carolina. It is the only laboratory of its kind in the world. Using a 105-fan array and other specialized equipment, IBHS engineers can recreate a variety of highly realistic wind, rain, fire and hail events. Other test facilities use scaled-down models or pieces of buildings. Only IBHS can look at entire structures as a system. The ability to mimic Mother Nature in a controlled, repeatable way allows IBHS to demonstrate the effectiveness, affordability and financial value of stronger building codes and better-built structures; identify effective solutions to building vulnerabilities; strengthen the relationship between theoretical and real building performance; and, validate/improve current scientific bases for designing and installing building products and systems. Our goal is to translate the results of this research into better public policy and market-based approaches to mitigation, in order to provide the best possible protection for homes, for businesses, and for entire communities.

Among IBHS' highest priorities is the adoption and enforcement of strong, mandatory statewide building codes – that is why we support H.R. 2069, the Safe Building Code Incentive Act. Like other effective mitigation measures, strong building codes can save lives, promote long-term fiscal stability, reduce public sector response and recovery costs, protect the environment, and create a more resilient society.

Last year, the federal government issued a record 99 Major Disaster Declarations in response to weather-related events in 35 states and two U.S. territories. The litany of disasters included floods, hurricanes and

tropical storms, landslides, severe winter storms, tornadoes, wildfires, and even an earthquake that was felt here in Washington, D.C. Of particular note, 2011 was an exceptionally deadly and destructive year for tornadoes, resulting in 550 confirmed fatalities; it was also the deadliest thunderstorm season in over 75 years, with 552 direct fatalities. From a financial perspective, insured losses from tornadoes and thunderstorms totaled over $25 billion in 2011 alone, more than double the previous record, while U.S. insured catastrophe losses from all weather events totaled $35.9 billion, well above the 2000 to 2010 average of $23.8 billion.

IBHS strongly agrees with the recently released Federal Emergency Management Agency (FEMA) Mitigation Framework that it is critical to identify new ways to "stop increasing the trajectory of our risk and start taking steps to reduce it." H.R 2069 is one such initiative.

Mitigation Matters

Given its important societal benefits, mitigation is a public health objective, economic imperative and humanitarian obligation. Every region of our country is vulnerable to one or more potentially devastating natural hazards; this is why improving disaster mitigation, preparedness, response, and recovery must be a national priority.

- Mitigation encourages personal responsibility by providing the tools that people need to protect themselves and their families from harm. In this regard, there are well-documented physical and property protection measures that homeowners and businesses should take to reduce damage and dislocation from almost every type of natural disaster. In addition, all Americans should have a disaster essentials kit, as well as an emergency evacuation plan that includes food, water, communications tools, and other supplies in sufficient quantity to last for at least three days.

- Mitigation is a sound fiscal strategy for private property owners and all levels of government, almost always resulting in significant long-term savings, including reduced public sector response and recovery costs. According to a study conducted by the National Institute for Building Sciences' Multi-hazard Mitigation Council, every dollar spent by FEMA on hazard mitigation grants reduced post-disaster relief costs by $3.65 – a savings for all taxpayers, regardless of where they live.

- Mitigation trades off an investment today against future losses. This creates a greater sense of inter-generational equity and a way to avoid the need for future Americans to pay for damage that could have been reduced or avoided entirely through cost-effective property protection measures taken now.

- Mitigation is a sound business strategy that protects the physical plant of commercial facilities and the bottom line of the employers who occupy them, as well as their employees, suppliers, and customers.

- Mitigation is particularly important for vulnerable populations, including the elderly, people with disabilities, those living in poverty, and those with limited English language skills. Such individuals often live in housing that is less able to withstand natural forces, and they may lack necessary resources for quickly evacuating in the face of imminent harm.

- Mitigation protects the environment by reducing the massive amounts of post-disaster debris that can overwhelm landfills and lessening the release of carbon dioxide and other greenhouse gases generated when buildings burn in wildfires.

- Mitigation enhances community resiliency by protecting property, improving disaster planning and response, and creating a culture that is focused on long-term economic health and social welfare.

While everyone wants their home to escape damage, few would want to live in the last house standing in a community destroyed by natural disaster. That is why comprehensive, community-wide property mitigation efforts are critical to maintaining community vitality.

Why Building Codes are Important

The purpose of building codes is to assure that – at the very least – minimum standards are used in the design, construction and maintenance of the places where people live and work. Building codes are intended to increase the safety and integrity of structures, thereby reducing deaths, injuries and property damage from a wide range of hazards. Damage reduction that results from adoption and enforcement of strong building codes helps keep people in their homes following a natural or manmade disaster, reduces the need for public and private disaster aid, and preserves natural resources. Furthermore, reducing damage to the built environment means that businesses can remain open after a disaster; their presence helps to sustain local economies through jobs and tax revenue.

Strong, mandatory statewide building codes promote a level, predictable playing field for designers, builders and suppliers. They also allow for economies of scale in the production of building materials and construction, as well as a level of safety for first responders during and after fires, earthquakes, and other catastrophes. From a financial perspective, IBHS research after Hurricane Charley found that homes built to modern building codes suffered 60 percent less damage, and that the frequency of damage among houses built to code was 40 percent lower than among homes that were built to older codes. Separate research found that insured losses from Hurricane Andrew would have been half of the total amount (which was over $19 billion in 1992 dollars) if modern building codes had been in place.

However, strong building codes alone are not enough to assure safe, stable construction. Good building codes have little value if they are not enforced by building department officials who understand code requirements and conduct on-site inspections to make sure that code requirements are put in place as homes and businesses are under construction. Unfortunately, disasters such as Hurricane Andrew have shown that lax code enforcement of otherwise effective building codes needlessly and greatly increased total damage. In each case, strong safety requirements were in place, but local officials failed to make sure that they actually were followed during the construction process.

Recognizing the importance of comprehensive building code safety systems, IBHS recently completed a first-of-its-kind "Rating the States" report, examining regulations and processes governing residential building construction in the 18 states most vulnerable to catastrophic hurricanes along the Atlantic Coast and Gulf of Mexico. The report combines IBHS' engineering expertise and regulatory research, looking at the adoption and enforcement of strong statewide building codes; code official certification and training; and contractor and subcontractor licensing. Not surprisingly, the research identified a wide range in the quality of building code safety systems –ranging from 4 to 95 (Florida and Virginia earned the highest ratings) on a 100 point scale (with zero being the weakest rating and 100 the strongest). Equally important to the concept of "rating the states," the analysis shines a much-needed spotlight on how states can take specific steps to improve their building code processes in order to better protect their citizens.

In order to better understand how real world performance compares to technical requirements, IBHS has conducted several unique, full-scale tests of houses at our Research Center. These tests examine the way structures work as a system, either to withstand, or succumb to, natural forces, such as high winds, wind-driven rain, wildfire ember storms and hailstorms. In our inaugural tests, we subjected houses to a highly realistic windstorm, with wind speeds and gusts up to 120 mph. In one notable test, the roof of one of the homes built using conventional construction practices in Central Illinois, where there is no statewide building code, lifted off entirely. This loss of the roof caused total destruction of the home only moments later. It is simply inexcusable that we do not ensure that houses in areas subject to high wind events –

much of this country – do not have better connections between the walls and roof, and between the walls and foundation.

The types of strapping needed to provide a continuous chain of connections from the roof to the foundation of a structure do not cost much, and they greatly increase the strength and safety of a home or business with respect to a variety of wind events, including hurricanes, tornadoes, and straight-line windstorms. Fortunately, there are states, like Florida, where this chain of connections are an integral part of the building code. Such simple, known technology that costs less than $1,500 to $2,000 for a home or small business should be a feature of residential and commercial construction everywhere – and can be through building codes. This is one of the reasons why Florida achieved a high score in the IBHS Rating the States Report and offers a model for other states to follow with respect to building codes.

The Safe Building Code Incentive Act

Consistent with its long support for effective statewide building codes, IBHS urges support for H.R. 2069, The Safe Building Code Incentive Act. The bill provides states with additional post-disaster relief funding if they take steps before a disaster to enact and enforce nationally recognized model building codes for residential and commercial structures. Specifically, states that meet the bill's well-designed criteria would qualify for an additional four percent of funding (above currently available levels) for Post-Disaster Mitigation Grants. None of these grants would be associated with the Pre-Disaster Mitigation Program that has been proposed for elimination in the President's FY13 Budget Proposal.

We believe that about 20 states either could qualify now – or with minor changes to their laws and regulation – for the additional 4 percent funding. However, it is important to note that the nature of the incentive does not mandate adoption or enforcement of statewide building codes in any jurisdiction that does not wish to improve its building code safety system.

The Safe Building Code Incentive Act grant program would be administered by FEMA, but does not require any additional appropriation to FEMA, since it draws funds from the existing Disaster Relief Fund. Moreover, consistent with the fiscal benefits of mitigation, any grants provided under the Safe Building Code Incentive Act are likely to prevent future disaster-related damage, and thus reduce future expenditures for FEMA Disaster Relief assistance.

H.R. 2069 provides a critical link between disaster prevention, protection, mitigation, response, and recovery, as called for in Presidential Policy Directive 8 (PPD-8), which has launched a comprehensive set of frameworks in each of these areas, with the overall goal of strengthening the security and resilience of the U.S. against natural and man-made threats that pose the greatest risks. In particular, the National Mitigation Framework within PPD-8 recognizes the important role that building codes play in reducing long-term vulnerabilities to economic, housing, health and social, infrastructure, environmental, and natural resources. H.R. 2069 is one important way to implement the Framework's proposed partnership between federal, state, and local governments by providing appropriate incentives that are "not focused only on particular incidents or events but which occur well before, during, and after events."

Thank you for the opportunity to offer our comments on the importance of mitigation and the benefits of the Safe Building Code Incentive Act. We urge you to move forward on this important legislation that utilizes knowledge about the proven benefits of building codes to improve our nation's safety, sustainability, and resilience.

Testimony

Of the

BuildStrong Coalition

Submitted to the

House Transportation and Infrastructure Subcommittee on

Economic Development, Public Buildings and Emergency Management

Hearing on

"A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters"

July 24, 2012, 10:00 a.m. EST

Introduction

Chairman Denham, Ranking Member Norton and Members of the Transportation and Infrastructure Subcommittee on Economic Development, Public Buildings, and Emergency Management, the BuildStrong Coalition thanks you for holding this hearing to examine the vital role that strong building codes can play in preventing the damage and reducing costs associated with natural disasters.

My name is Rod Matthews and I am the P&C Operations Vice President for State Farm Insurance Companies, based in Bloomington, Illinois. State Farm is proud to be a founding member of the BuildStrong Coalition, a group of national business and consumer organizations, companies, firefighters, emergency managers and building professionals dedicated to promoting stronger building codes.

The BuildStrong Coalition shares the subcommittee's goal of helping communities to prepare for and recover from natural disasters while saving taxpayer money in the process. Our first consideration, however, must always be the safety of our communities and the American people. Our thoughts and prayers go out to the victims of recent tragedies caused by natural disasters – events which compel us to advance legislation to help fortify the nation's defenses against similar events in the future.

Not only is the cost of natural disasters measured in the loss of precious lives, it is also measured in the dollar cost to our economy. 2011 was the fifth most costly year on record for insured catastrophe losses in the United States. Approximately 50% of the $72.8 billion overall cost of disasters in the United States was covered by insurance in 2011. The remainder was either covered by federal disaster relief or not compensated at all.

For decades, Congress has routinely provided insufficient funding for disaster relief and then added funds in the middle of fiscal years. Supplemental disaster funds have been appropriated in 17 of the 22 budget years between fiscal year 1989 and 2010, according to the Congressional Research Service.

The ongoing need for emergency funding has often created political battles divided by both party and geographic lines. We know that natural disasters are inevitable, and while planning for the costs associated with these disasters is not a perfect science, there is a need for the federal government to budget more wisely for them on the front end. Merely hoping the weather cooperates and relying on luck is not the way to establish FEMA's disaster relief budget.

One effective step Congress should immediately take to alleviate the financial pressures associated with natural disasters is to encourage mitigation measures, specifically in the form of building stronger, safer homes and businesses. To that end, the BuildStrong Coalition strongly

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endorses *HR 2069, the Safe Building Code Incentive Act*, as a forward-thinking investment in a stronger and safer America.

Building Codes Save Lives, Property and Taxpayer Money

There is overwhelming scientific evidence to support the conclusion that enforced model statewide building codes save lives and greatly reduce property damage and the subsequent need for federal disaster aid.

Model building codes govern all aspects of construction and help to protect homes and buildings from the devastating effects of natural catastrophes. Uniform, statewide adoption and enforcement of model building codes by states helps to reduce long-term risks affecting people, property, the environment, and ultimately the economy. The model codes are developed nationally in the U.S. by a consensus process involving researchers, construction experts, and local building officials. They are adopted and enforced at the state level to mitigate effects of natural disaster perils inherent to each state. Statewide building codes are not mandated by the federal government today and will not be if HR 2069, the Safe Building Code Incentive Act is enacted.

In recent years, there have been several significant studies that support the need for this Congress to incentivize the statewide adoption and enforcement of model building codes:

In a landmark study conducted in the aftermath of Hurricane Katrina, researchers at the Louisiana State University Hurricane Center estimated that stronger building codes would have reduced wind damage from Katrina by 80%, saving taxpayers and the local economy $8 billion.

In 2005, FEMA commissioned a study by the National Institute of Building Sciences' Multihazard Mitigation Council. The goal of the study, based on the work of more than 50 national experts, was to assess the future savings from hazard mitigation activities. According to the study, every $1 dollar spent on hazard mitigation (actions to reduce disaster losses) provides the nation with about $4 in future benefits.[1]

In response to the devastating tornadoes in the spring of 2011, the FEMA Building Science Branch of the Federal Insurance and Mitigation Administration (FIMA) deployed a Mitigation Assessment Team (MAT) to Alabama, Georgia, Mississippi, Tennessee and Missouri to assess the damage caused by these storms. This report presented 49 recommendations directed at improving public safety and building performance during tornado events. The adoption and enforcement of model building codes was the key recommendation presented more often than any other measure in the MAT report.

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[1] Multihazard Mitigation Council, December 19, 2005 ; http://www.nibs.org/index.php/mmc/news/Entry/newstudydisastermitigationiscosteffectiveandreducesfuturelosses

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Another study conducted for the Insurance Institute for Business & Home Safety (IBHS) found that losses from Hurricane Andrew, which struck south Florida in 1992 and caused more than $20 billion (in today's dollars) in insured damage, would have been reduced by 50 percent for residential property and by 40 percent for commercial property if those structures were built in accordance with Florida's 2004 statewide building code. Another IBHS study following Hurricane Charley in 2004 found that modern building codes reduced the severity of property losses by 42 percent and the frequency of losses by 60 percent.

More valuable research is currently being conducted by the Institute for Business and Home Safety (IBHS) at their recently opened research center in Richburg, South Carolina. This research has already demonstrated how the human and financial toll of natural disasters can be greatly reduced by building stronger homes and business structures. With relatively simple upgrades in construction, such as strapping to create a continuous load path from the roof, through the walls, and into the foundation, thicker roof decking, and textured, rather than smooth nails, test homes were built to withstand 110 mile-per-hour winds with little damage. On the other hand, test homes with the same floor plan that were not upgraded, were completely destroyed at wind speeds of only 95 mph to 100 mph. Taking steps to prepare in these ways before a disaster hits can make a major difference.

Despite this correlation, most states have not enacted statewide building codes and necessary enforcement measures. Standards for construction, code-related inspection, and enforcement vary widely across the country. Where statewide codes exist, it is not uncommon to allow individual jurisdictions (e.g., cities of a particular class, or counties) to deviate from the adopted model building codes resulting in a weakening of the model minimum standards.

Natural Disasters are Inevitable; How Can We Be Better Prepared?

Given that we are in the midst of hurricane season, I would be remiss without touching briefly on how vulnerable we are to the high winds associated with hurricanes and tornadoes.

In an analysis of inflation adjusted U.S. catastrophe losses between 1990 and 2011, wind losses were by far the most costly[2]. Hurricanes alone accounted for 42% of the $375.7 billion in economic losses ($160.5 billion), while tornadoes have 31.8% of the losses ($119.5 billion). Florida's current hurricane dry spell of nearly seven years is the second longest in recorded history, but it is still a question of "when" a hurricane will hit Florida, not "if".

Though less publicized than wind and rain, damage from storm surge inundation can significantly impact homes and businesses through intense flooding and residual standing water

[2] *The Legacy of Hurricane Andrew: What Has Been Learned Over the Past 20 Years?*; The Insurance Information Institute, June 27, 2012; http://www.iii.org/presentations/the-legacy-of-hurricane-andrew-what-has-been-learned-over-the-past-20-years.html

pushed overland by the storm. A 2012 CoreLogic Storm Surge Report[3] examined single-family homes exposed to potential hurricane storm surge damage along the Gulf and Atlantic coasts in the U.S., providing the number and estimated value of total properties at risk. The report states that even a Category 1 hurricane such as Irene in 2011, the first to make landfall in the U.S. in three years, can cause billions in destruction in cities and states that may have assumed they were safe from the storm surge peril. The value of all structures that could potentially be damaged by a Category 5 hurricane storm surge (or a Category 4 in New York City) exceeds $700 billion. Even lower category hurricane surge events could damage more than $500 billion in structural value.

Where seismic risk is concerned, earthquakes in Haiti and Chile in 2010 and Japan and the U.S. in 2011 have focused much needed attention on the preparedness of the U.S. for such an event. While Haiti is very different from the U.S., the two countries share some characteristics with regard to the vulnerabilities of property and number of people living in areas at risk from earthquake damage.

About 200 years separated Haiti from its last major quake and the 2010 devastation. It has also been 200 years since the 1811-1812 earthquakes struck along the New Madrid/Wabash Valley Seismic Zone in Arkansas, Illinois, Indiana, Mississippi, Missouri and Tennessee. Research by the United States Geological Survey (USGS) estimates there is a 7% to 10% chance of an earthquake of magnitude 7.0 or greater (the same strength of the Haiti earthquake) within the next fifty years. Applied Insurance Research (AIR) recently estimated expected insured losses to residential, commercial and industrial buildings and contents of approximately $110 billion if a quake similar to that which occurred in 1811-1812 occurred today. Just as Haiti did not observe model building codes, the most vulnerable areas in the New Madrid fault also lack effective building code adoption and enforcement.

The other two areas of the U.S. with the greatest seismic risk are Charleston, South Carolina and the Pacific West Coast, which includes California, Oregon and Washington. All four states enforce statewide model building codes reflective of the best available science and cognizant of the earthquake peril. The rest of the country should be incentivized to update their building codes to put the power of modern building science to use for their homeowners and businesses.

It should be noted that current seismic codes are more focused on life safety issues rather than the resiliency or reparability of buildings. They are meant to prevent general failure (collapse) while allowing for local damage (damage to non-critical sections) to protect people. Damage to code-compliant buildings can still be costly, but the reduction of lives lost is the principal aim. As such, even though the 1994 Northridge, California earthquake caused significant damage and resulted in over $6.8 billion being paid in federal disaster aid, it is considered successful evidence of seismic codes.

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[3] CoreLogic 2012 Storm Surge Report; http://www.corelogic.com/about-us/researchtrends/2012-storm-surge-report.aspx

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The Safe Building Code Incentive Act

Those of us who work in the insurance industry and the emergency management community have concluded long ago that strong building codes are the nation's best first line of defense against natural disasters. Stronger, safer homes and businesses save lives and better protect people's biggest investment.

This is where the efforts of this subcommittee can be so important to the American people. If Congress can establish the proper incentives and focus the attention of the states on the undeniable value of strong building codes, the nation will be safer and much more resilient to natural disasters.

The BuildStrong Coalition therefore urges your support of *H.R. 2069, The Safe Building Code Incentive Act.* This legislation provides states with additional disaster relief funding in exchange for adopting and enforcing modern building codes.

Under the proposed law, states that adopt and enforce nationally recognized model building codes for residential and commercial structures would qualify for an additional 4% of funding available for post-disaster grants. The program would be administered by FEMA through the Robert T. Stafford Act.

Currently about 20 states could qualify now – or with minor changes to their laws and regulations – for the incentive payment of 4% additional disaster aid. This legislation will not require any additional appropriation to FEMA since it draws funds from the existing Disaster Relief Fund. In addition, the nature of the incentive does not mandate the adoption of statewide building codes on any states that wish to maintain their current patchwork structure.

Over time qualifying states such as Florida have learned the costly lessons of building code effectiveness. Unfortunately, other states have still refused to act by adopting these minimum standards in building safety, thereby putting their citizens at higher risk and increasing the liability of all U.S. taxpayers.

With a disproportionate level of new development now being on coasts and waterways, it is critically important that we encourage the wide spread adoption of the model building codes in these areas in order to protect property, save lives and ultimately reduce taxpayer exposure to natural disasters..

A 2012 Milliman study found that H.R. 2069 would have saved U.S. taxpayers $11 billion in hurricane relief payments alone from 1988 to present had it been in place. That's almost $500 million a year in savings. It's time for the nation to have a long-overdue conversation about building safety and its intersection with natural disasters. This subcommittee can ignite this debate by moving forward with consideration of *The Safe Building Code Incentive Act.*

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Conclusion

I want to thank the subcommittee again for holding this important hearing and for providing me with the opportunity to discuss the crucial role strong building codes can play in making the nation safer and more secure in the face of natural disasters.

The overwhelming evidence supporting the widespread adoption of statewide building codes proves that *the Safe Building Code Incentive Act* is a fiscally responsible way to empower FEMA to assist in natural disaster recovery while working to prevent future damage. The incentives associated with this legislation will cost a modest amount of money in the near-term, but significant savings will be realized in the long-term

Stronger, safer homes and businesses save lives and better protect people's biggest investment.

In closing, The BuildStrong Coalition wishes to thank the bill sponsors for their leadership and urges the Transportation and Infrastructure Committee to expeditiously pass *H.R. 2069, The Safe Building Code Incentive Act*.

Coalition Members

Allstate Insurance Company
The American Institute of Architects
American Insurance Association
Associated Builders and Contractors
Congressional Fire Services Institute
Council of Insurance Agents and Brokers
Farmers Insurance Group of Companies
Federal Alliance for Safe Homes
Financial Services Roundtable
Fireman's Association of the State of New York
Florida Association of Counties
Florida Farm Bureau
The Insurance Institute for Business and Home Safety
Independent Insurance Agents and Brokers of America
International Code Council
Liberty Mutual Insurance
MetLife
National Association of Mutual Insurance Companies
National Fire Protection Association
National Institute for Building Sciences
National Ready Mixed Concrete Association
Nationwide Insurance
NeighborWorks America
Professional Insurance Agents
Property Casualty Insurers Association of America
Reinsurance Association of America
Simpson Strong-Tie Co
Solutia
Travelers
State Farm Insurance Companies
The Hartford
USAA

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Hearing on Reducing Costs to Taxpayers and Saving Lives Through Hazard Mitigation and Building Codes

Statement of:

Diane Linderman, PE, PWLF
APWA President

To the House Transportation and Infrastructure Subcommittee on Economic Development, Public Buildings and Emergency Management

July 24, 2012

Chairman Denham and Ranking Member Norton, members of the House Subcommittee on Economic Development, Public Buildings and Emergency Management, thank you for the opportunity to submit testimony concerning the "Safe Building Code Incentive Act of 2011" (H.R. 2069). My name is Diane Linderman, President of the American Public Works Association (APWA). I submit this statement today on behalf of our nearly 29,000 members who provide public works infrastructure and services to millions of people in rural and urban communities, both large and small. Working in the public interest, APWA members plan, design, build, operate, manage, administer and maintain the transportation, water supply, sewage and refuse disposal systems, public buildings, and other structures and facilities essential to our nation's economy and way of life.

Public Works Are First Responders

When disaster strikes, whether the source is natural or manmade, immediate action by first responders can make a life or death difference. Formally recognized in 2010 as first responders by the Department of Homeland Security's Emergency Services Sector, public works professionals play a crucial role in mitigation, preparedness, response and recovery operations addressing all hazards, disasters and emergencies which include events such as blizzards, hurricanes, earthquakes, tornadoes, floods, pandemics or terror attacks. A pillar of the public safety community, public works are integral in emergency planning operations and are often the only first responders qualified and capable of providing services during disaster recovery efforts such as debris or snow removal, and operating pumping and drainage systems after a flood.

Why Mitigation Works

We believe that in order to create a more resilient nation, adequate mitigation funding is needed and must remain in place to address the preventative measures necessary to protect communities. In 2005, the Multi-Hazard Mitigation Council, a council of the National Institute of Building Sciences, published a study which found that every dollar the Federal Emergency Management Agency invested into mitigation yields approximately $4 in cost savings to the taxpayer. Implementing mitigation plans and projects reduces loss of life, personal property damage and reliance on funding from actual disaster declarations. Effective mitigation efforts can not only break the cycle of repeated damage and reconstruction that can paralyze communities but also improve recovery time from disasters.

Public works has a central role in mitigation by providing much of the required engineering and technical expertise. Public works also maintains most of a community's lifeline critical infrastructure facilities—facilities on which community activity and health depend:

- Transportation: streets, highways, bridges, airports
- Utility Systems: water, sewer, electric, gas, etc.
- Drainage and flood control systems

- Communication facilities: telephone, cable television, etc. Whether public or privately owned, these are most often located in public rights-of-way or on public property. Public works must concern itself about the condition and continued operation of such critical facilities regardless of ownership.
- Public Facilities: courthouses, town hall, parks, playgrounds and other public infrastructure are built, managed and maintained by public works. On a continuing basis, public works also administers building and safety codes.

Building a Strong Local, State and Federal Partnership

As the Subcommittee continues to deliberate over the "Safe Building Code Incentive Act of 2011" it is important that the Subcommittee consider that national preparedness policies and guidelines have a direct impact on States and localities. Obtaining input on national policies from State and local partners such as elected officials, agency personnel, subject matter experts, non-profit organizations and the private sector is key for national mitigation, preparedness, response or recovery efforts to be effective.

A strong local-State-Federal partnership is vital to mitigation planning and disaster assistance. As such, information sharing and inter-governmental coordination are an essential component to public works' ability to maintain critical infrastructure systems, save lives and reduce damage when disaster strikes. Moreover, public works agencies often build their emergency management plans around what is needed to protect a specific infrastructure system and the lives and property associated with it. Readiness begins with local level first responders working together with State and Federal partners. National preparedness policies are only effective when States and localities impart their experiences and expertise.

Mr. Chairman and Ranking Member Norton, thank you for the opportunity to submit this statement. APWA stands ready to assist you and the Subcommittee as we work towards improving mitigation practices and disaster assistance, and creating more resilient communities.

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The Honorable Jeff Denham
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Subcommittee on Economic Development, Public Buildings and Emergency Management

The Honorable Eleanor Holmes Norton
Ranking Member, House Committee on Transportation and Infrastructure,
Subcommittee on Economic Development, Public Buildings and Emergency Management

Hearing of July 24, 2012: A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters

On behalf of the International Code Council, we are pleased to offer the following comments with regard to HR 2069, the subject of the hearing held on July 24, 2012.

The International Code Council is a member-focused association dedicated to helping the building safety community and construction industry provide safe and sustainable construction through the development of codes and standards used in the design, build and compliance process. Most U.S. communities and many global markets choose the International Codes (I-Codes). Fifty states and the District of Columbia have adopted the I-Codes at the state or jurisdictional level. Federal agencies including the Architect of the Capitol, General Services Administration, National Park Service, Department of State, U.S. Forest Service and the Veterans Administration also enforce the I-Codes for the facilities that they own or manage.

A few issues that were discussed during the hearing are deserving of some additional clarification, for the benefit of the members of the committee, and the public. We would like to address the following issues:

The number of states that have adopted building codes.

Documented lives saved by building codes.

Whether a 4% incentive is sufficient to incentivize states and local governments to adopt and enforce building codes.

Number of states that have adopted building codes:
The question of how many states adopt and enforce building codes is essential to analyzing the impact of the legislation, HR 2069. During the hearing, one witness indicated that the number of states with building codes that would qualify under the bill for additional assistance was 20. This led some members of the Committee to assume that the remaining 30 states do not have building codes in place. That is not correct.

Actually, all 50 states have some building codes in place. There are several reasons for the divergence in the statistics. Because model building codes are adopted at the state or local level, some states have statewide minimums, some have state maximums, and still others do not set state requirements, but larger cities and counties in such states usually adopt both a building code for commercial buildings (like the International Building Code, or IBC) and a residential code to cover one and two family dwellings (like the International Residential Code, or IRC) Since the bill requires states to adopt AND enforce both a commercial and residential code, and have a system for statewide enforcement, many states that have no state minimum, or perhaps only a state minimum for commercial buildings, would not be included in the list of 20 currently qualifying states. As the witness from the IBHS testified, most states could qualify by making modest changes to their laws. At present, ICC counts 50 states that have adopted the IBC at the state or local level, and 43 states that have adopted the IRC at the state or local level. So the number of states close to qualifying, is actually most of the states.

Documented lives saved by building codes:
During the hearing, a question was posed by the Rep. Crawford, asking whether any of the witnesses had seen evidence of actual lives saved by the codes. While such a question is inherently difficult, as it requires the proving of a negative, there are some studies that show documented lives saved. The most graphic of these studies is one conducted by the City of Scottsdale, AZ, that has mandated automatic sprinklers in all homes since 1985 in the Scottsdale building code. A 2009 presentation by Michael Clack, the Director of Development Services for the city, documented 13 lives saved over the 15 year period from 1986 through 2000, as well as reducing the average loss per fire event from 39,650 per event in non-sprinklered events, to $3,500 in sprinklered incidents. Over the same period, the cost of installing sprinklers dropped from $1.14/sq.ft. to $.70/sq. ft. for custom homes, and to $.59/sq. ft. in production homes. Not a single death occurred in a sprinklered dwelling over the course of the study. ICC can provide a copy of the full presentation that includes specific case studies, if the Committee would like to see it.

ICC also would point to numerous examples of earthquakes around the world, where deaths are counted in the thousands, in contrast to similar magnitude earthquakes in California over the past decade, where deaths as a result of building collapse are a rare event. Building codes with strong provisions addressing seismic risk save lives every time an earthquake strikes.

Whether a 4% incentive is sufficient to incentivize states and local governments to adopt and enforce building codes.
As ICC is involved on a daily basis assisting jurisdictions around the country to adapt and adopt ICC codes for their use locally, we see the difficult and sometimes contentious debates that surround the adoption of current building codes. While it is impossible to precisely predict the

impact, ICC believes this legislation will have a strong impact on adoptions for two reasons. First, it will send a clear message that the Federal government, and FEMA, which is widely recognized as the Federal authority on disaster response and mitigation, believe that adopting current codes will reduce the cost and damages caused by disasters. It will communicate in a way that other advocates cannot, that there are real benefits to the public in adopting current codes, and that the adoptions will save lives and prevent property damage. Second, the incentive, even though small, provides a tangible reward to the jurisdiction, that allows them to demonstrate to the public that their pro-active efforts to protect the public through code adoption and compliance, is recognized by FEMA. We believe the incentive will act as one more weight on the scale in favor of adoption.

Statement for the Record

On behalf of the
National Association of Home Builders

Before the
House Committee on Transportation and Infrastructure
Subcommittee on Economic Development, Public Buildings, and Emergency Management

Hearing: "A Review of Building Codes and Mitigation Efforts to Help Minimize the Costs Associated with Natural Disasters"

July 24, 2012

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Introduction

Chairman Denham, Ranking Member Holmes Norton, and distinguished Members of the Subcommittee, on behalf of the National Association of Home Builders (NAHB), we respectfully submit this statement discussing the impacts H.R. 2069 could have on local communities.

NAHB represents more than 140,000 members involved in the home building, remodeling, multifamily construction, property management, subcontracting and light commercial construction industries. We are affiliated with more than 800 state and local home builder associations throughout the country, and since the association's inception in 1942, NAHB's primary goal has been to ensure that housing is a national priority and that all Americans have access to safe, decent and affordable housing, whether they choose to buy or rent a home.

The Safe Building Code Incentive Act (H.R. 2069)

NAHB and builders across the country have a long history of volunteering after disasters to help rebuild devastated communities. NAHB's staff frequently works with FEMA, HUD and other Federal agencies to develop guidance and best practices for addressing natural hazards in construction. We understand and have seen first hand what tornadoes, hurricanes, and earthquakes can do and NAHB would like to work with Congress to help mitigate the impact these disasters have on the built environment. While we commend the efforts of Representatives Diaz-Balart, Sires, Hanna and Southerland to ensure minimum building standards, there are some unintended consequences with the current version of HR 2069.

Circumvent States' Rights To Adopt and Amend Building Codes

Under the existing language, this bill would require a nationally recognized model building code to be used as a minimum standard. Building codes are adopted at the state and local levels, and while many states and localities adopt a model code, they often make changes to reflect the needs of the community. These changes can include provisions that reflect a better understanding of the natural hazards affecting a community. Also, unintended consequences of code provisions are often not discovered until enforcement begins at the state or local level.

For example, in the 2003 International Residential Code, a provision was added, that in many cases required all walls, including internal walls, of a house to be fully sheathed using plywood or oriented strand board. The original intent of this change was to provide a more efficient method for wind and earthquake resistance in houses. This change excluded other traditional options, such as the use of gypsum board, fiberboard and let-in bracing, which could achieve the same structural integrity. Many jurisdictions took exception to this requirement and amended the code to allow for these traditional products. Six years later, the International Residential Code was also finally amended at the national level. States are the testing ground for many policies. H.R. 2069, in its current form, could impede the efforts of state and local governments to amend the code to address such unintended consequences.

Unnecessarily Restricts Amending Non-Structural Provisions within Building Codes

It is important to draw a distinction between the structural and non-structural provisions of the building code. Non-structural provisions such as accessibility, energy efficiency or fire safety requirements have no role in disaster mitigation and to prevent states from amending these provisions further inhibits their rights and responsibilities. Energy-efficiency provisions are a perfect case in point. The current national model energy codes focus on wall and roof insulation and high-performance windows and do not recognize alternate paths to achieving the same energy performance, such as the use of high-efficiency mechanical equipment. Some states or localities have, or are in the process of, amending their building

code to allow equipment tradeoffs and other methods to achieve equivalent energy savings to that of the national model codes.

Another example deals with mandatory requirements for the installation of fire sprinklers in homes. During the development of the 2009 International Residential Code, a provision was added to require all new one- and two- family dwellings to be equipped with a residential fire sprinkler system. Since the 2009 IRC was published, 37 states have passed legislation or amended the code to prohibit the enforcement of a mandate for sprinkler installation in homes, as they are written in the model code. They've made this decision based on other provisions in the national model codes that have significantly improved the safety of, and greatly reduced the risk of fire in, modern homes. Under the existing language of H.R. 2069, over half of the states would not be eligible to receive the incentive funding. States and localities have a much better understanding of the potential risks in their communities and should be able make the changes necessary to ensure the construction of safe, resilient homes.

Does Not Account for Multiple Codes

HR 2069 requires the adoption of the latest version of a national model building code. Several states, including Florida, New York, Texas, Massachusetts, and Vermont do not adopt the national model building codes as they are published. Instead, they have written their own state building code and will add appropriate provisions from a national model code to their state code. Other states that do adopt the national model codes will often delete the administrative chapters from these codes since they already have legislation that describes how the code will be applied and enforced. It is unclear how this bill would impact those states. Would they be eligible for this incentive?

It Would Pit States v. Local Governments

This bill would require the State to enforce the building code in all jurisdictions. Codes are very often adopted and amended at the local level and this could create conflict and confusion. According to the ICC website there are sixteen states that do not adopt or enforce state-wide codes, and leave the decision to local governments. Such "home-rule" states would appear to be ineligible to apply for these post-disaster funds.

Some Local Building Departments Cannot Afford Certain Enforcement Costs

Building departments typically generate revenue through building permit fees. As construction has stalled, many of these departments have been forced to make severe cuts to staff and programs, including enforcement. H.R. 2069 would require jurisdictions to provide plan reviews and field inspections, which are costly and labor intensive. This is simply not an option in many communities across the country, thus excluding some states from receiving this benefit.

Conclusion

NAHB shares your desire to ensure safe homes for all and welcomes the opportunity to work with the committee to find cost effective solutions for natural hazards mitigation. It is essential, however, that any solution preserves the states' (and localities') rights to adopt and amend building codes. We look forward to working with Representatives Diaz-Balart, Sires, Hanna and Southerland, as well as the subcommittee, to address our concerns with H.R. 2069. Thank you for this opportunity.

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TESTIMONY OF

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PRESIDENT, NATIONAL INSITUTE OF BUILDING SCIENCES

TO THE

U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS AND EMERGENCY MANAGEMENT

JULY 24, 2012

Chairman Denham, Ranking Member Holmes Norton, and members of the Subcommittee, thank you for the opportunity to provide testimony on building codes and mitigation efforts to help minimize the costs associated with natural disasters.

The National Institute of Building Sciences (Institute) was established by Congress in 1974 upon recognition of a lack of an authoritative national source to make findings and to advise both the public and private sectors on the use of building sciences and technology to achieve recognized goals (12 USC 1701j-2).

To achieve its mission to support advances in building science and technology to improve the built environment, the Institute has established a diverse portfolio of councils and programs that engage building industry experts in examining and developing tools, technologies and practices to meet identified needs. This testimony reflects the diversity of hazards-related issues identified by many of our councils and projects such as the Multihazard Mitigation Council (MMC) and Building Seismic Safety Council (BSSC) to our ongoing work with the U.S. Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) and National Institute of Standards and Technology (NIST).

Understanding Hazards and Mitigation

Disasters come in many forms, from hurricanes and earthquakes to tornados and floods. Changing weather patterns are leading to increased incidents of droughts and strong storms. Just last week, the National Climatic Data Center reported that the nation is experiencing the largest drought since the

1950s. In June, about 55 percent of the country was in at least a moderate short-term drought—the highest level since December 1956—and at least 70 percent of the nation is in some state of drought. In 2011, hazards in the U.S. affected nearly 500,000 people, resulted in over 800 people killed and almost $60 billion in damages.[1]

Understanding and addressing such potential disasters holistically provides the most economic and best performing buildings.

In the 106th Congress, the Senate Appropriations Committee requested that FEMA fund a study to quantify the future savings from hazard mitigation activities. The Senate Report stated, "The Committee recognizes that investing in mitigation will yield reductions in future disaster losses and that mitigation should be strongly promoted. However, an analytical assessment is needed to support the degree to which mitigation activities will result in future 'savings.'"[2]

After an exhaustive effort engaging over 50 national experts, the MMC released the study findings in 2005.[3] The study results include the oft-cited finding that one dollar spent on mitigation saves society an average of four dollars. Based on the findings, the MMC made the following recommendations:

- Mitigation is sufficiently cost-effective to warrant federal funding on an ongoing basis, both before disasters and during post-disaster recovery.
- Mitigation is most effective when it is carried out on a comprehensive, community-wide, long-term basis.
- Continuing analysis of the effectiveness of mitigation activities is essential for building resilient communities.

As defined by Congress in the Energy Independence and Security Act of 2007 (EISA), a high-performance building "integrates and optimizes on a life cycle basis all major high performance attributes, including energy conservation, environment, safety, security, durability, accessibility, cost-benefit, productivity, sustainability, functionality, and operational considerations." It is through this lens that we provide both the public and private sector with innovative solutions for the built environment.

Currently, no federal agency has the mandate or the ability to adequately consider all high-performance building attributes and support the numerous goals placed upon the building community. Considering just green building programs, the Government Accountability Office identified 94 initiatives housed in 11 agencies.[4] Opportunities to increase collaboration across all building issues and within each individual issue area are necessary. A cross-agency workinggroup on building-related issues that could develop holistic strategies for achieving national goals would be incredibly valuable.

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[1] International Disaster Database, Centre for Research on the Epidemiology of Disasters, www.emdat.be.
[2] U.S. Senate Report 106-161.
[3] *Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities*, Multihazard Mitigation Council, National Institute of Building Sciences, 2005.
[4] GAO-12-79, *Green Building: Federal Initiatives for the Nonfederal Sector Could Benefit from More Interagency Collaboration*, November 2011.

While buildings issues as a whole are not addressed comprehensively, the National Earthquake Hazard Reduction Program (NEHRP) provides an effective model for addressing the various agency responsibilities for earthquake risk reduction. Similar cooperative efforts should be examined for other hazards and other high-performance building attributes.

Under NEHRP, the Institute's Building Seismic Safety Council works with leading experts to translate recent findings and research into improvements in building codes and standards.

The Role of Codes and Standards

When adopted by jurisdictions, codes and standards establish the community's expectations for protecting the health, safety and welfare of its citizens. Such codes and standards are developed and then adopted through a series of actions that assure engagement from all relevant stakeholders. This engagement, along with effective adoption and enforcement, ensures the industry follows codes and standards, thus meeting the community's expectations.

Codes and standards provide a common language and requirements for the design, construction and operations of buildings. This commonality provides many benefits for the public, the building industry and government. The public is assured that buildings provide a minimum level of protection from hazards, are accessible to users and maintain public health. Within the construction industry, manufacturers know they have the consistency in requirements necessary to invest in the production and development of products that meet these common needs; designers and contractors have consistent criteria to follow; and owners have buildings that possess a consistent baseline of attributes. Each industry segment can also develop the education and training activities it needs while being mindful of the overall codes and standards, and all industry members can work under these mutual requirements to achieve a common result. Governments can develop criteria with building expert input to assure technical feasibility and cost-effectiveness; access to an education and training infrastructure; and cost savings due to consistent methods for review and enforcement.

For decades, the United States has led the development and implementation of compliance verification with construction-based standards and codes (e.g. building construction regulations). In the past, strong consensus-based standards development programs have encouraged growth in the industrial segments by ensuring that American businesses understand the health, safety and performance-based requirements for their products, systems and services. This created a level playing field where manufacturers could successfully compete. Compliance with building construction regulations through activities such as traditional code enforcement, which references thousands of consensus-based standards, has provided for an increasingly safe and efficient built environment for homes, commercial buildings and places of assembly. However, the current economic downturn is creating new and significant challenges for the code enforcement community.

Municipalities are delaying the adoption of updated model codes due to the perception that updated codes increase construction costs while providing an uncertain return on investment. Countering this perception requires the development of more widely accepted metrics to demonstrate payback periods for energy- and water-efficiency provisions, as well as better methods to present how code

updates are based on the latest knowledge and experience to protect public safety. Faced with the prospect of enforcing more codes of increasing complexity with fewer people, many municipalities resort to concentrating on enforcing only the basic life safety requirements of the construction codes. With these constraints, building officials are less likely to enforce energy and water efficiency provisions, which in turn means the energy and water efficiency gains expected from updated codes are not being fully realized.

To improve the built environment while dealing with ongoing economic stresses associated with compliance verification, new compliance paths must be identified that then can open opportunities for codes and standards developers to explore new formats, criteria, adoption mechanisms and/or timelines for compliance verification, resulting in increased compliance rates and/or reduced costs associated with compliance verification. Meeting this challenge is important to public and private-sector agencies or entities that want to increase levels of compliance with current and future codes and standards. The information is even more important to those who purchase or lease buildings and pay expenses to operate them, but cannot ensure compliance with codes or standards due to a lack of training or resources. New approaches in code criteria, format and adoption, and new methods to assess compliance will need to be considered to ensure effective implementation and conformance with the code requirements—particularly as codes and standards require higher levels of building performance. Such codes will require different formats to present the criteria, increased scope, or extention beyond issuance of the initial certificate of occupancy,.

New technological advancements, such as building information modeling (BIM), can play a role in relieving these constraints. They can help by improving the quality of code compliance verification. They also can improve the municipality's ability to cope with the burden of enforcing more complex energy and water efficiency-related provisions because jurisdictions can evaluate the data contained within the model codes and other requirements electronically. However, work still remains before BIM accomplishes the levels of interoperability needed to be deployed as a code-checking tool. Further, jurisdictions also need the training and tools to utilize BIM. Work to incorporate compliance checks with BIM is progressing and BIM may ultimately be an excellent tool for improved levels of code compliance, eventually streamlining code approvals by allowing plans and submittals to be code checked automatically and with fewer errors. Significant triple bottom line savings for building owners and developers are foreseen. Specifically in the hazard response arena, the widespread use of BIM can provide first responders digital access to building layouts and other important information.

A strong codes and standards development community supports a strong and robust economy. Government at all levels must work together with standards and codes developers to address the challenges of better articulating the benefits of participation in their various development processes. They need to encourage more widespread verification of compliance with construction codes and support the development of BIM and other technology-based initiatives that help streamline approvals and improve the quality and consistency of enforcement.

Within the recently enacted transportation bill (Moving Ahead for Progress in the 21st Century Act or MAP-21), several important provisions focused on building codes and how their effective adoption and enforcement can serve as mitigation strategies. Section 100235 calls on FEMA to examine the potential

role of building codes in floodplain management and section 100243 allows communities to apply Community Development Block Grants to supplement state or local funding for the administration and enforcement of building codes. I strongly urge this Subcommittee to support these and similar requirements and ensure their funding.

While the adoption and enforcement of codes and standards is typically left to state and local authorities, there are opportunities for the federal government to support their adoption and limit the potential exposure of taxpayer funds for recovery and rebuilding efforts. The bipartisan Safe Building Code Incentive Act of 2011 (H.R. 2069) is one such example of an opportunity to reward proactive jurisdictions for implementing proven mitigation strategies. The legislation is supported by numerous private sector organizations representing insurance, design and construction, local governments and public safety interests.

The National Infrastructure Advisory Council has recognized the role of design and construction in promoting resilience stating, "Government should endeavor to better understand the role of design and construction in infrastructure resilience. Application of this understanding will help to shape policy, R & D Funding, and incentives that can spur technological innovation as well as the robust design and construction of critical infrastructures needed for resilience."[5]

A 2010 summit on designing for resilience sponsored by DHS looked specifically at codes and standards and identified the importance of including resilient design concepts in a performance-based approach, as well as continuity of operations. An integrated suite of standards, codes and guidelines that support resiliency for buildings and infrastructure should be developed with the participation of relevant codes and standards organizations. Incentives and education of regulators and their constituents will be essential to ensuring uniform adoption of resiliency objectives.[6]

As the entity charged by Congress to provide an authoritative source for findings and advice to the public and private sector on the use of building science and technology to achieve national goals, the Institute is pleased to offer its expertise to the Subcommittee, Congress at-large and federal agencies.

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[5] The National Infrastructure Advisory Council, *Critical Infrastructure Resilience: Final Report and Recommendations*, September 2009.
[6] *Designing for a Resilient America: A Stakeholder Summit on High Performance Resilient Buildings and Related Infrastructure*, Department of Homeland Security, Science and Technology Directorate, 2011.

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