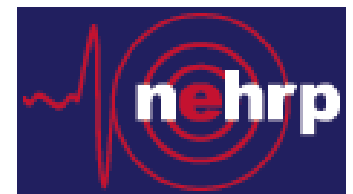


NEHRP Advisory Committee on Earthquake Hazards Reductions Meeting - FEMA Update

Edward Laatsch, P.E.
Mitigation Directorate
Risk Reduction Division
Building Science Branch



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Outline

- The Team – There are changes
- Current Activities - FY 2009 and ongoing
- New Initiatives – Starting and underway
- FY 2009 and FY 2010 Budget numbers
- Challenges and Opportunities



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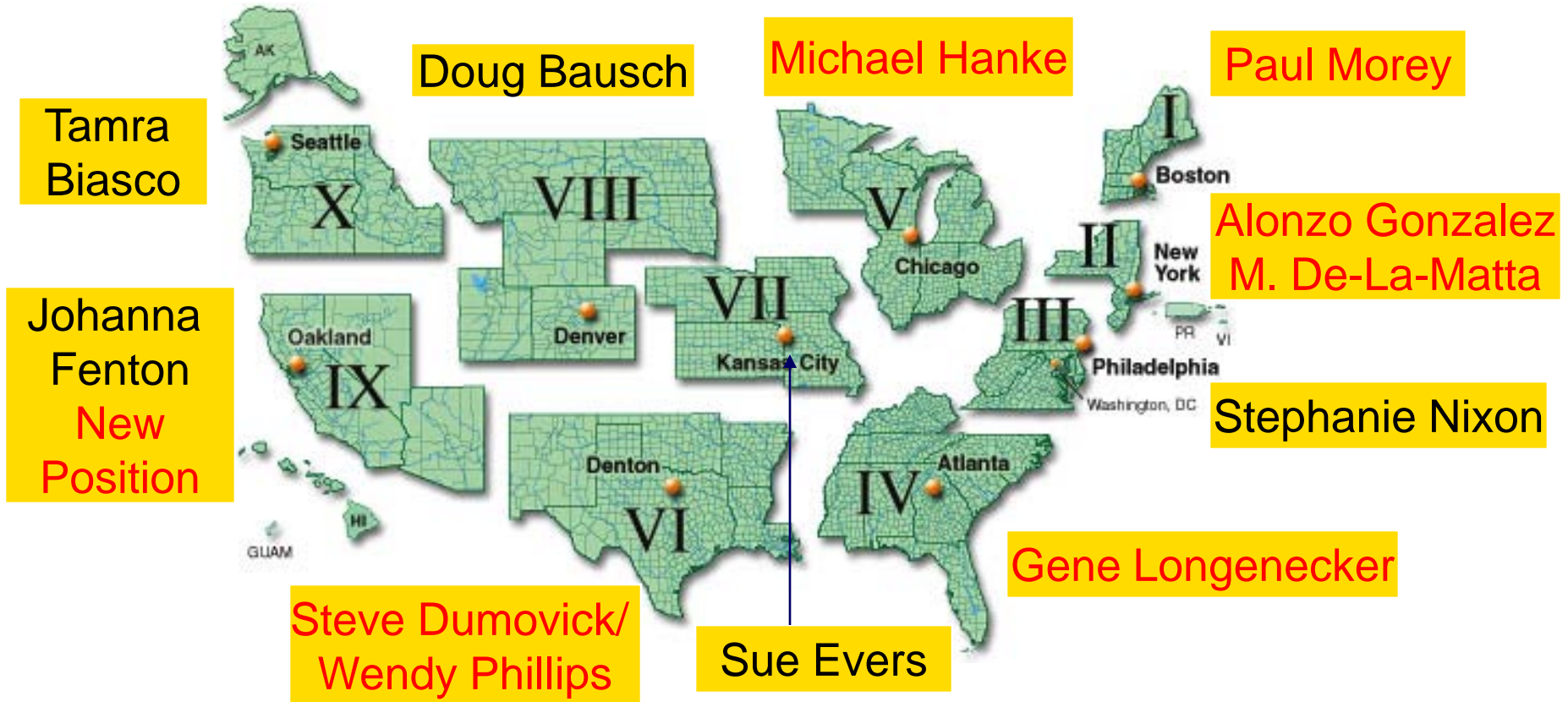
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The Team – There are changes

Regional Earthquake Program Managers



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The Team – There are changes

Headquarters Program Staff

- **Cathleen Carlisle** – Existing Buildings Guidance/NETAP
- **Robert Franzen** – Management Analyst/State Program/NEHRP liaison
- **Larry Hultengren** – Consortia/Code Adoption Tracking
- **Mike Mahoney** – Codes/Special Projects (PBSD, R Factors, Tsunami, etc)
- **Mai Tong** – New Buildings Guidance/Building Science
- **Paul Tertell** – Incremental Rehabilitation
- **New Position** – State Grant Program – Offer made



FEMA's Role in the NEHRP

- Implementation and program delivery needs a coordinated approach.
- NEHRP agencies work together at all levels to transfer technology to customers.
- The Goal is increased protection through risk awareness and action.



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FEMA's Role in the NEHRP

- The program objectives and activities listed in the NEHRP Re-authorization translate into activities in the following areas: (listed from technical to implementation)
 - Guidance Development (new and existing)
 - Building Codes and Standards
 - Training (current, planned and future strategy)
 - Outreach (strategic communication)
 - State and Local Coordination (NETAP, EMPG, State Assistance)
 - Partnerships (consortia, EERI)
- State Regional Earthquake Program Staff have a critical role in meeting NEHRP mission and goals



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Current Activities - FY 2009 and ongoing

Current Regional EQ Program Manager Activity

- **Region 1**
 - New Earthquake Program Manager
 - Vermont and Maine State assistance grants
 - Coordination with NESEC and Western Observatory
- **Region 2**
 - Vigilant Guard Exercise – New York
 - Soil and geological studies – New Jersey
- **Region 6**
 - NLE 11 IPC - Arkansas
- **Region 7**
 - Missouri Seismic Safety Commission *Strategic Plan for Earthquake Safety in Missouri*, December 2007
 - Missouri Earthquake Awareness Month
 - QuakeSmart Earthquake Outreach



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Current Regional EQ Program Manager Activity Cont...

- **Region 8**

- Hebgen 50 Year Anniversary
- NRCC Recommended Alert Levels
- HAZUS/ShakeMap Integration Pilots and automation
- Scenario Atlas-USGS Hazard Map Disaggregation
- Wasatch Front Catastrophic Planning

- **Region 9**

- Great California ShakeOut
- Loma Prieta Earthquake Commemorative Symposium
- NV HAZUS project
- American Samoa

- **Region 10**

- Alaska Seismic Safety Week for local emergency planners
- Completion of all school retrofits in 2010 in Kodiak, AK – WSSPC Award of Excellence in Mitigation for 2009



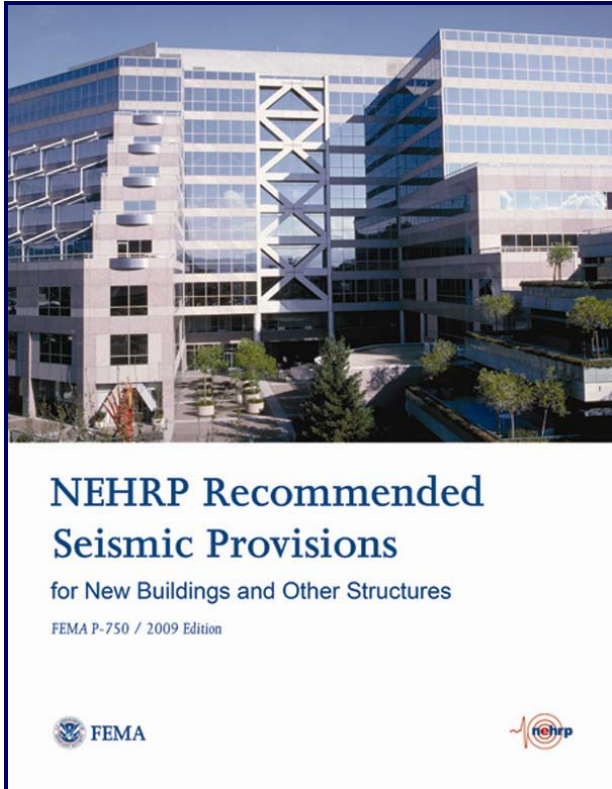
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2009 NEHRP Recommended Seismic Provisions for New Buildings and Other Structures



- New 2009 edition being published as FEMA P-750.
- Primary resource for ASCE/SEI 7-10 and the national model building codes IBC and IRC 2012.
- Includes a series of supporting publications:
 - FEMA P-751 Nontechnical Introduction
 - FEMA P-752 Design Examples
 - FEMA P-752 Training Materials



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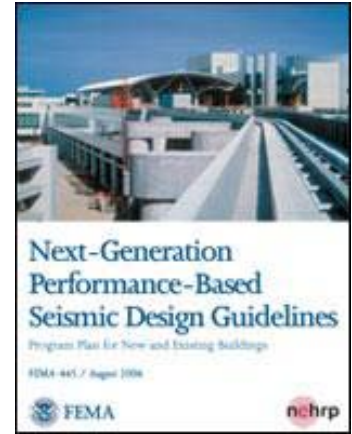
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Performance Based Design

- Goal of the project is to develop design and construction criteria that will allow an owner to determine performance of their building based on criteria they can understand:
 - Dollars Casualties Downtime
- Will allow for validation of code level prescriptive design.
- The first phase is to develop a Performance Assessment Methodology, which will include a software tool, PACT.
- Second phase will use the Phase 1 Methodology to develop Performance Based Seismic Design Guidelines.



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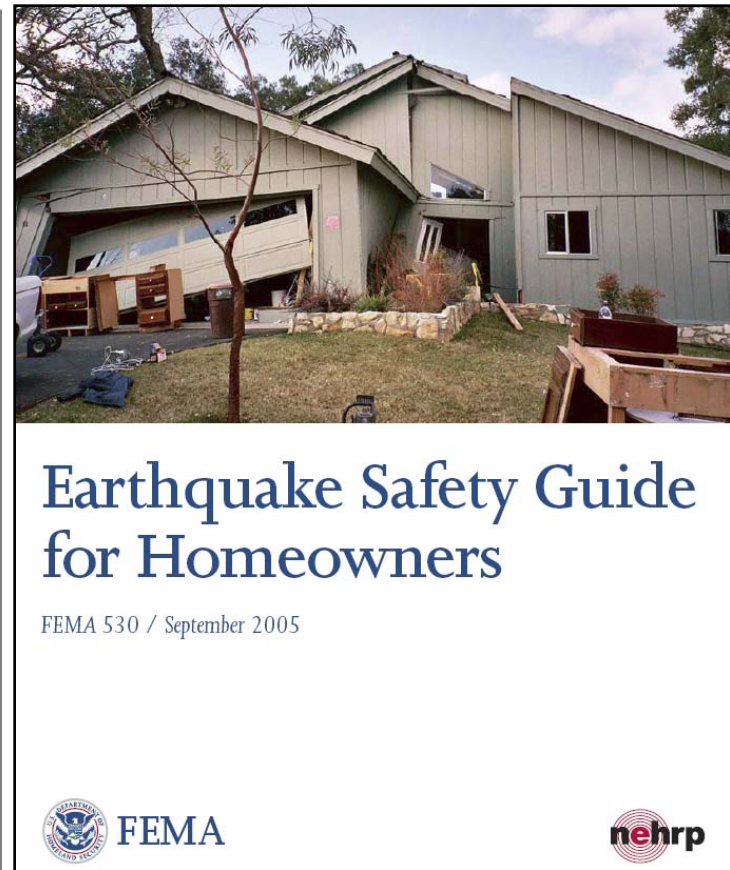
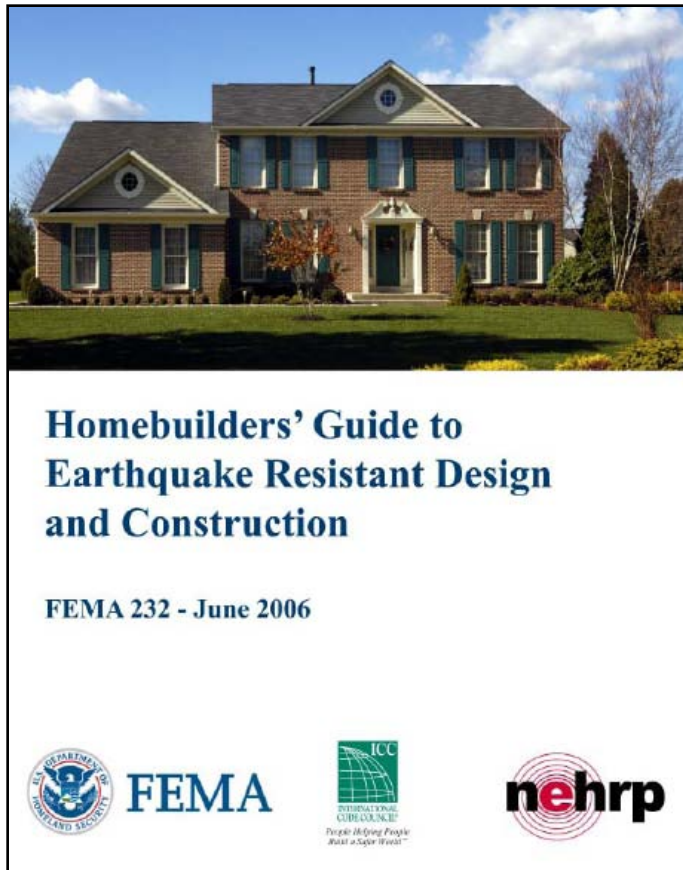
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Residential Publications



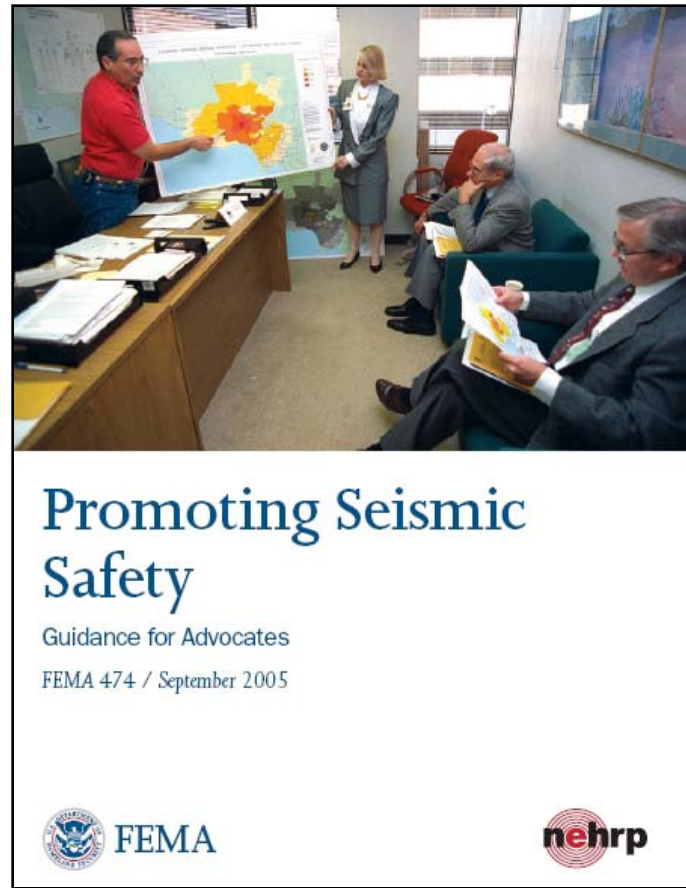
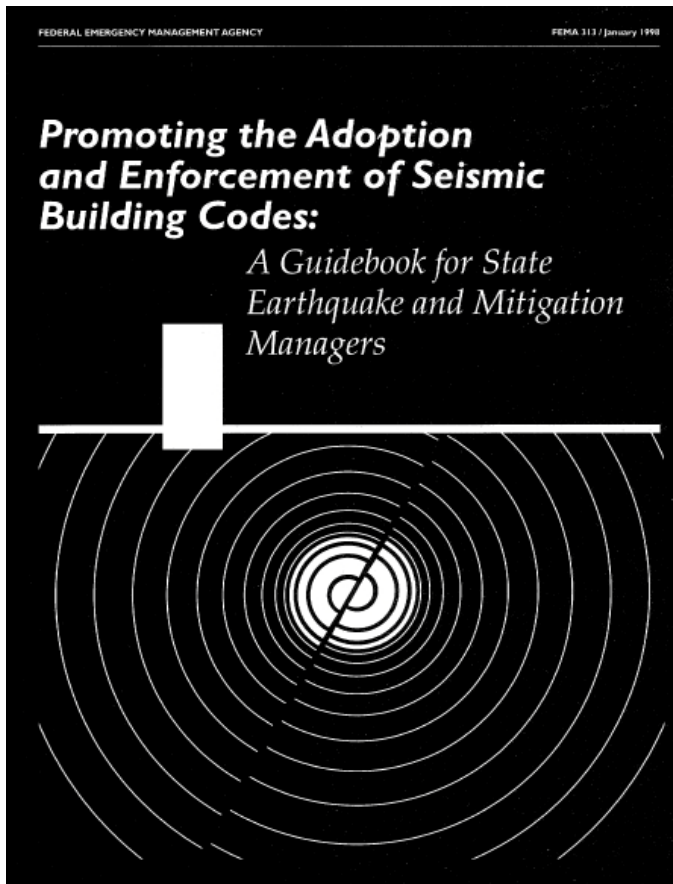
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Policy Publications



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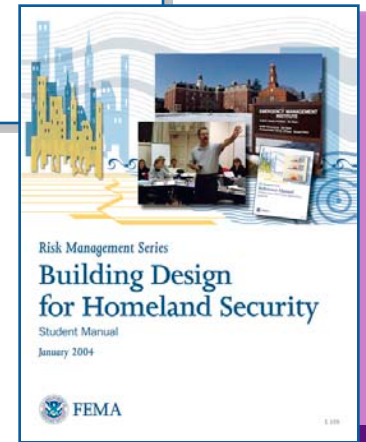
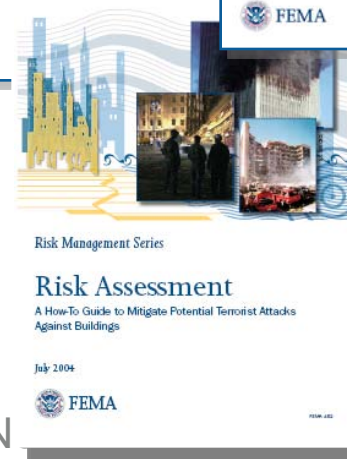
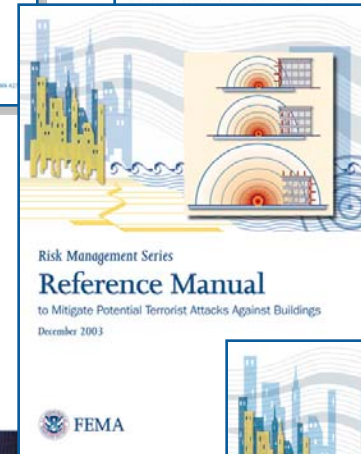
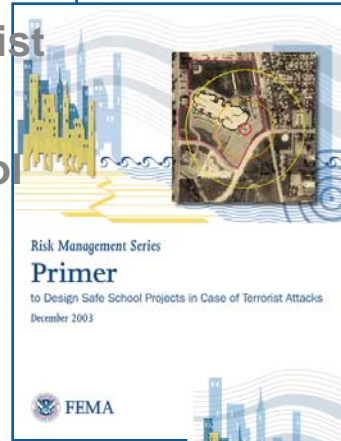
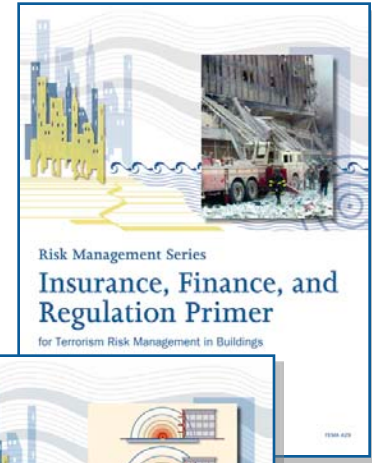
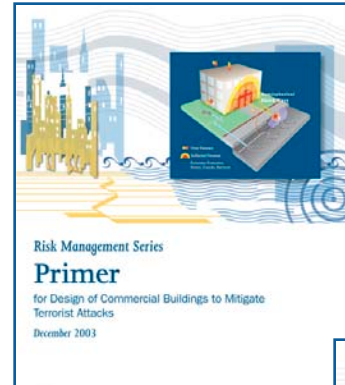
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RMS Publications

EXISTING PUBLICATIONS

- FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings
- FEMA 427, Primer for Design of Commercial Buildings to Mitigate Terrorist Attacks
- FEMA 428, Primer to Design Safe School Projects in Case of Terrorist Attacks
- FEMA 429, Insurance, Finance, and Regulation, Primer for Terrorist Risk Management in Buildings
- FEMA 452, Risk Assessment, A How-To Guide to Mitigate Potential Terrorist Attacks Against Buildings
- E155, Building Design for Homeland Security



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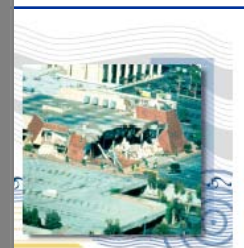
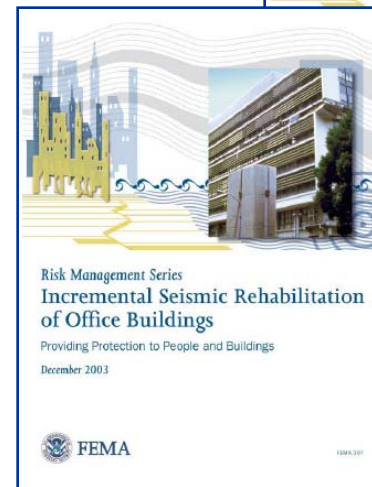
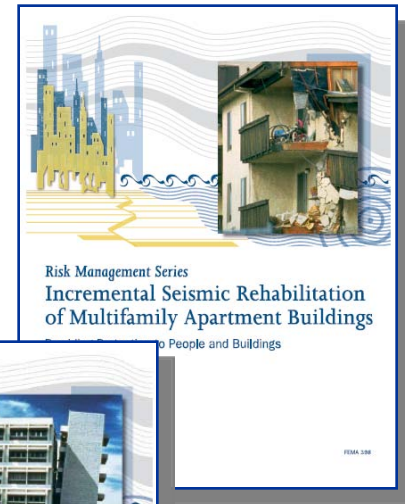
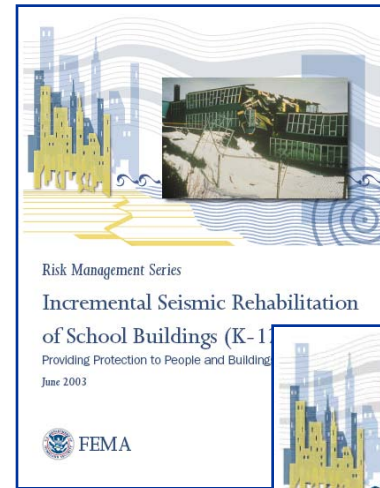
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RMS Publications

Natural Disasters

- FEMA 395, Incremental Seismic Rehabilitation of School Buildings (K-12)
- FEMA 396, Incremental Seismic Rehabilitation of Hospital Buildings
- FEMA 397, Incremental Seismic Rehabilitation of Office Buildings
- FEMA 398, Incremental Seismic Rehabilitation of Multifamily Apartment Buildings
- FEMA 399, Incremental Seismic Rehabilitation of Retail Buildings



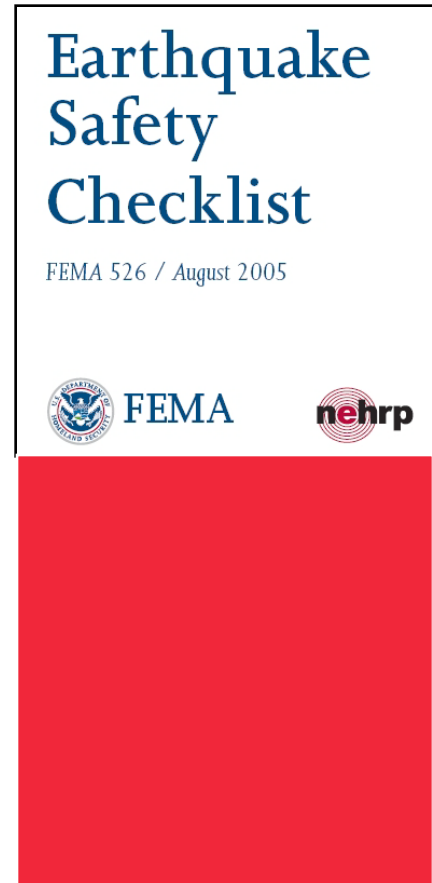
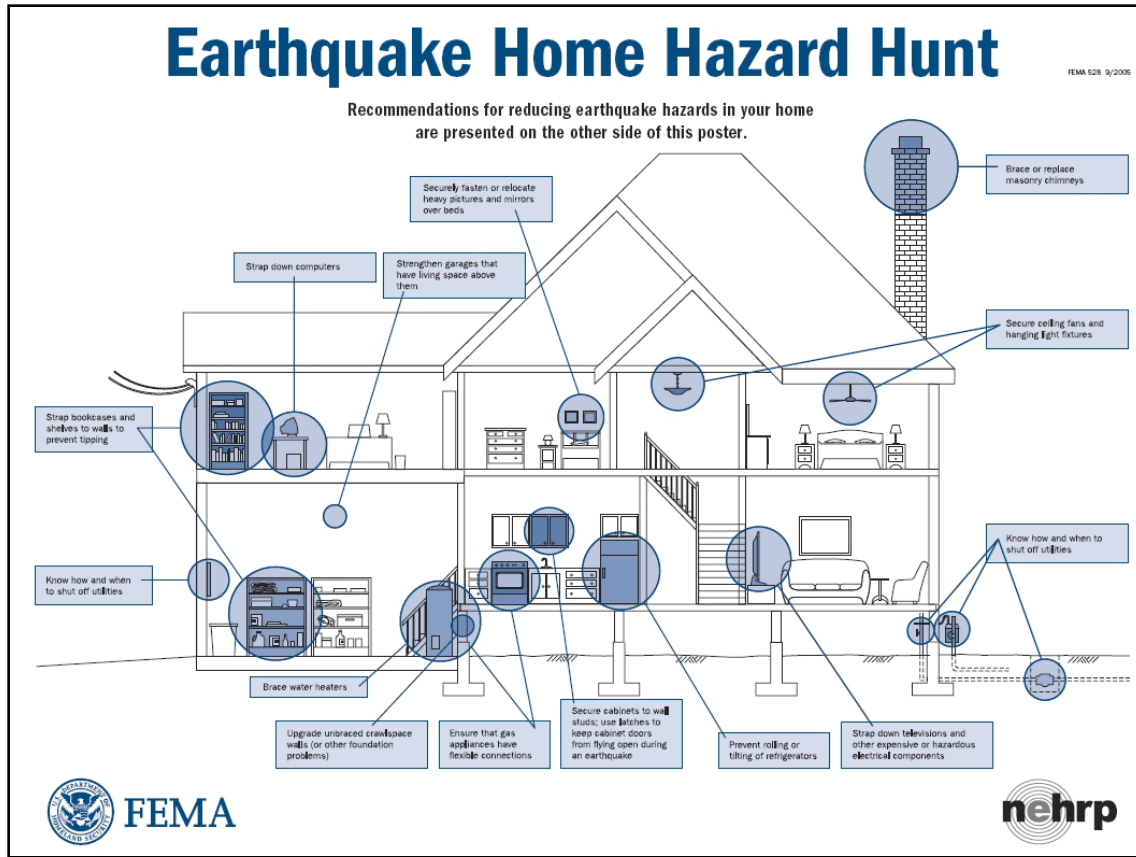
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Awareness Publications



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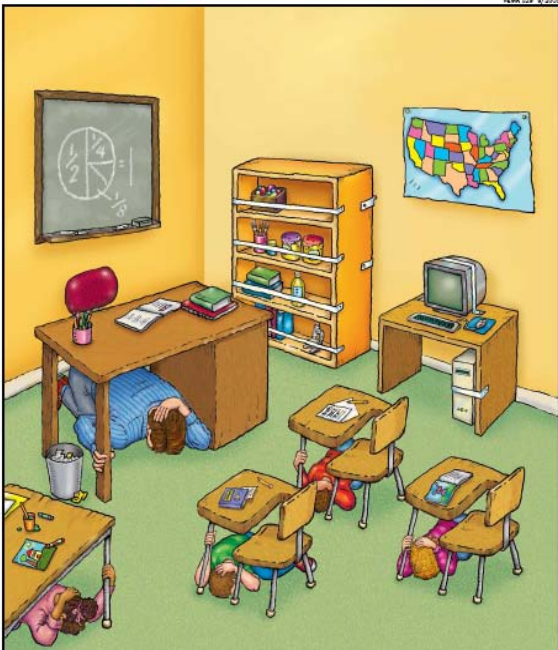
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FEMA Activity – Drop, Cover, and Hold

When earthquake shaking begins . . .
Drop, Cover, and Hold

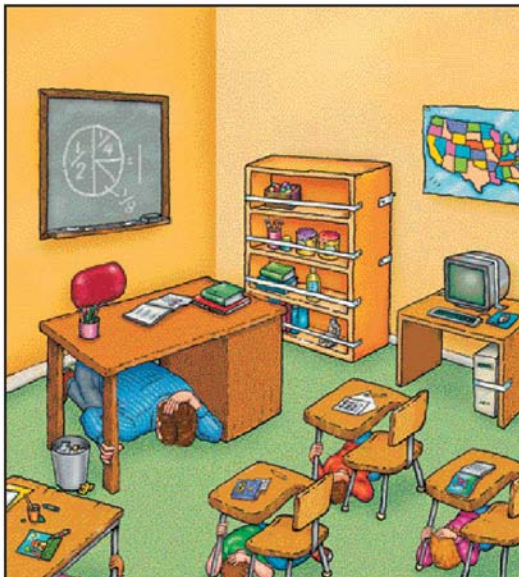


Take cover under a sturdy desk or table, hold on to the desk or table leg so that the desk or table stays on top of you, and keep your head down until the shaking stops.

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nehrp

グラッと来たら……
物の下にもぐって、身を守る



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FEMA NEHRP Activity

- For the past several years, FEMA has been working on a hazard mitigation demonstration project to develop real time linkage between HAZUS and the USGS Shake Map.
 - Will allow for real time loss estimations based on actual ground motions produced automatically following an event
 - Seattle and Salt Lake City underway with a third city this year
- The goal of the project to have the capability to transfer methodologies, software, and hardware to other cities.



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The Role of Earthquake Mitigation after Disasters

- Earthquake mitigation can happen before, during and after the design and construction of buildings and infrastructure and it can happen before and after a disaster.
- Earthquake mitigation can add value after a disaster –
 - Hazard Mitigation field operations
 - Community education and outreach
 - Moving from mitigation plans to sound projects



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The Role of Earthquake Mitigation after Disasters

- Mitigation Field Activity during Response –
 - Scientific and geospatial analysis on social and structural vulnerabilities supports pre-response (magnitude of impacts thru HAZUS, Shake Map).
 - Mitigation can support evacuation decision making process with Local and State decision-makers.
 - Source of risk communication information.
 - A factor in immediate recovery decisions to ensure risks are understood and promote resilient communities, sheltering away from high-risk areas, and guidance to re-build safer.



The Role of Earthquake Mitigation after Disasters

- Mitigation Assessment Team (MAT) collects important data and lessons learned after disasters
 - Collects perishable, post-earthquake, data on its' own and thru partners.
 - Identifies design practices, construction methods, and building materials that failed or performed well.
 - Lessons learned are provided to States, locals, designers and contractors.
 - Leads to improvements in Nation's building codes and standards.



New Initiatives – Starting
and underway

FEMA NEHRP Strategic Priorities

- HQ held off-site meetings to re-visit our goals/priorities
- Mapped authorization activities against NEHRP Strategic Plan against FEMA mission
 - Identified strengths and weaknesses
- Needs:
 - Better regional coordination
 - Improved implementation
- Gaps:
 - Infrastructure/Lifelines
 - Multi-hazard activities



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NEHRP Strategic Priorities

Goal A: Improve understanding of earthquake processes and impacts

Goal B: Develop cost-effective measures to reduce earthquake impacts on individuals, the built environment, and society-at-large

Goal C: Improve the earthquake resilience of communities nationwide

NEHRP Objectives

A.1: Advance understanding of earthquake phenomena and generation processes
A.2: Advance understanding of earthquake effects on the built environment
A.3: Advance understanding of the social, behavioral, and economic factors linked to implementing risk reduction and mitigation strategies in the public and private sectors
A.4: Improve post-earthquake information acquisition and management

B.5: Assess earthquake hazards for research and practical application
B.6: Develop advanced loss estimation and risk assessment tools
B.7: Develop tools that improve the seismic performance of buildings and other structures
B.8: Develop tools that improve the seismic performance of critical infrastructure

C.9: Improve the accuracy, timeliness, and content of earthquake information products
C.10: Develop comprehensive earthquake risk scenarios and risk assessments
C.11: Support development of seismic standards and building codes and advocate their adoption and enforcement
C.12: Promote the implementation of earthquake-resilient measures in professional practice and in private and public policies
C.13: Increase public awareness of earthquake hazards and risks
C.14: Develop the Nation's human resource base in earthquake safety fields

NEHRP Responsibilities

Responsibility 1: Work closely with national standards and model building code organizations, in conjunction with the NIST, to promote the implementation of research results.

Responsibility 2: Promote better building practices within the building design and construction industry including architects, engineers, contractors, builders, and inspectors

Responsibility 3: Operate a program of grants and assistance to enable States to develop mitigation, preparedness, and response plans, prepare inventories and conduct seismic safety inspections of critical structures and lifelines, update building and zoning codes and ordinances to enhance seismic safety, increase earthquake awareness and education, and encourage the development of multi-State groups for such purposes.

Responsibility 4: Support the implementation of a comprehensive earthquake education and public awareness program, including development of materials and their wide dissemination to all appropriate audiences and support public access to locality-specific information that may assist the public in preparing for, mitigating against, responding to and recovering from earthquakes and related disasters.

Responsibility 5: Assist the NIST, other Federal agencies, and private sector groups, in the preparation, maintenance, and wide dissemination of seismic resistant design guidance and related information on building codes, standards, and practices for new and existing buildings, structures, and lifelines, and aid in the development of performance-based design guidelines and methodologies supporting model codes for buildings, structures, and lifelines that are cost effective and affordable.

Responsibility 6: Develop, coordinate, and execute the National Response Plan (now Framework) when required following an earthquake, and support the development of specific State and local plans for each high risk area to ensure the availability of adequate emergency medical resources, search and rescue personnel and equipment, and emergency broadcast capability.

Responsibility 7: Develop approaches to combine measures for earthquake hazards reduction with measures for reduction of other natural and technological hazards including performance-based design approaches.

Responsibility 8: Provide preparedness, response, and mitigation recommendations to communities after an earthquake prediction has been made under paragraph (3)(D) of this Act, which states "USGS shall issue, when necessary, and notify the Director of the Federal Emergency Management Agency and the Director of the National Institute of Standards and Technology, of an earthquake prediction or other earthquake advisory, which may be evaluated by the National Earthquake Prediction Evaluation Council."

Responsibility 9: Enter into cooperative agreements or contracts with States and local jurisdictions and other Federal agencies to establish demonstration projects on earthquake hazard mitigation, to link earthquake research and mitigation efforts with emergency management programs, or to prepare educational materials for national distribution.

New Emphasis on Program Outreach

- It's not enough to do good work – people have to know about it
- Look for opportunities to highlight what we do
- State Earthquake Program Managers are important partners.
- Everybody needed to help tell the story (State EQ and Regional EQ Managers, Agencies, Consortia)
- FEMA has started initiatives such as QuakeSmart, new education and training



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- Background
- Deployment
- Communicating Quakesmart
- QuakeSmart Website
- Future Plans

“A community cannot fully recover from a damaging earthquake until its businesses have recovered.”

David Maurstad





Background



In early 2008, FEMA, working through the Applied Technology Council (ATC) entered into an agreement to create a multi-faceted information project (*QuakeSmart*) to disseminate earthquake mitigation practices and benefits to business located in at-risk communities.

The goal of *QuakeSmart* is to build awareness within the business community of the risk and to educate businesses on things they can do to mitigate the impact of earthquakes.

Not only can business owners protect their investments and recover more quickly from a disaster, they can save on insurance premiums, significantly reduce the risk of injury or death for themselves, their employees, and customers, and create a more resilient community in which future investment is more attractive.

Know your risk, make a plan, and take action is the matra of this program.



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Data was gathered from community research and interviews with Chamber Executives from 38 communities vulnerable to earthquakes . Four were selected: Cape Girardeau, MO, Evansville, IN, Reno, NV and Emeryville, CA .

During the period October 14th to the 23rd, FEMA's Mitigation Directorate, along with Regions V, VII, and IX, participated in a series of outreach seminars (forums) designed to educate business owners on the benefits of earthquake hazard mitigation.



Karen Armes, the Acting Regional Administrator for Region IX who was a guest speaker at the forums held in Emeryville, California and Reno, Nevada, pointed out that “Earthquake Season” was year round, and that business leaders needed to know exactly what they needed to do in order to reduce their losses and get their businesses back up and running more quickly.





At the forum held in Evansville, IN., FEMA Region V Regional Administrator Ed Buikema, told forum attendees that an effective earthquake mitigation plan involves assessing risk, forming a plan, and then acting on it.





Public Service Announcement



Public Service Announcement (PSA), developed for both general business audiences and tailored for specific state and regional locations.



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- FEMA Press Releases
- Newspaper Ads
- Save The Date Invitations
- Local Newspaper articles
- Local Televised Public Service Announcement Airings
- Contact with Local Media at Forum Locations





Communicating QuakeSmart (Continued)

Along with speaking at the forums, senior FEMA managers visited several national chain stores including Home Depot and Ace Hardware to thank them for supporting of the QuakeSmart.

These stores are promoting the QuakeSmart program by displaying QuakeSmart signage as a part of a larger display of emergency and earthquake preparedness items for the home.



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QuakeSmart Website



www.quakesmart.org

A “general store” of earthquake mitigation information and resources. Includes information ranging from knowing your risks to the fundamentals of making a Risk Reduction Plan. In addition, it provides links to a wealth of information provided by other programs and agencies that can help businesses develop and institutionalize mitigation strategies and preparedness plans.



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In 2009 FEMA will build on the 2008 program successes by following-up with the four host communities, through their Chambers regarding their QuakeSmart initiatives.

Coordinated an additional Chamber event in Encino, California.

Conducted a regional business roundtable in Memphis, Tennessee where over a dozen regional and national businesses expressed interest in the QuakeSmart concepts.

Planning underway for FY 2010 and beyond.



Earthquake State Assistance Program

- Under Public Law 108-360, FEMA is directed to operate a program of assistance to States that accomplish various eligible earthquake mitigation activities
- Other goals include establishment and or maintenance of a dedicated State Earthquake Hazards Reduction Program that achieve measurable improvements in earthquake mitigation activities
- In FY09 FEMA reestablished a dedicated Earthquake State Assistance Program designed to meet these activities and goals



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Eligible Activities

- Develop seismic mitigation plans
- Prepare inventories and conduct seismic safety inspections of critical structures and lifelines
- Update building codes, zoning codes, and ordinances to enhance seismic safety
- Increase earthquake awareness and education
- Encourage the development of multi-State groups for such purposes



Qualification Criterion

- State Seismic Risks by Seismic Design Categories (SDC)
- States of high seismic risks (SDC D and up) in FY 2009 – 29 States and Territories received \$
- The new seismic risk map for the 2010 State EQ Program
- FY10 qualification based on the new risk maps



High and Very High Seismic Risks

	2009 State EQ Assistance Program				
	Very High Risk	High Risk	Moderate Risk	Some Risk	Low Risk
FEMA Region 1		VT, ME	MA, CT, NH	RI	
FEMA Region 2		NY, PR, VI	NJ		
FEMA Region 3			VA, WV	MD, DE, PA	
FEMA Region 4	KY, SC, TN	GA, MS, NC, AL			FL
FEMA Region 5	IL	IN		OH	MI, WI, MN
FEMA Region 6	AR	NM	OK, TX	LA	
FEMA Region 7	MO			NE, KS	IA
FEMA Region 8	MT, WY	UT	CO	ND, SD	
FEMA Region 9	CA, NV, HI	AZ, Guam			
FEMA Region 10	AK, OR	WA, ID			



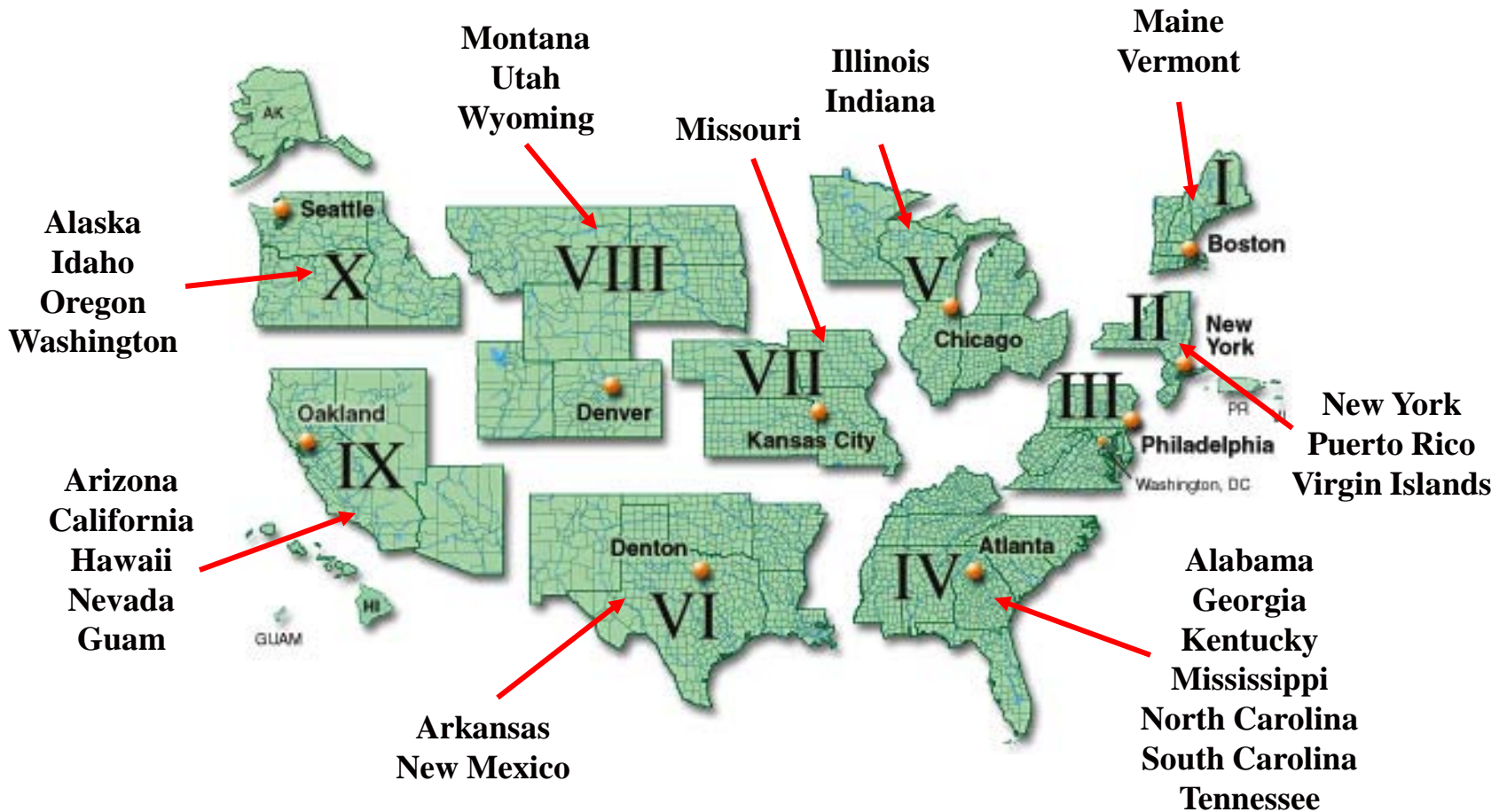
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FY 09 EQ State Assistance Program



Eligible States



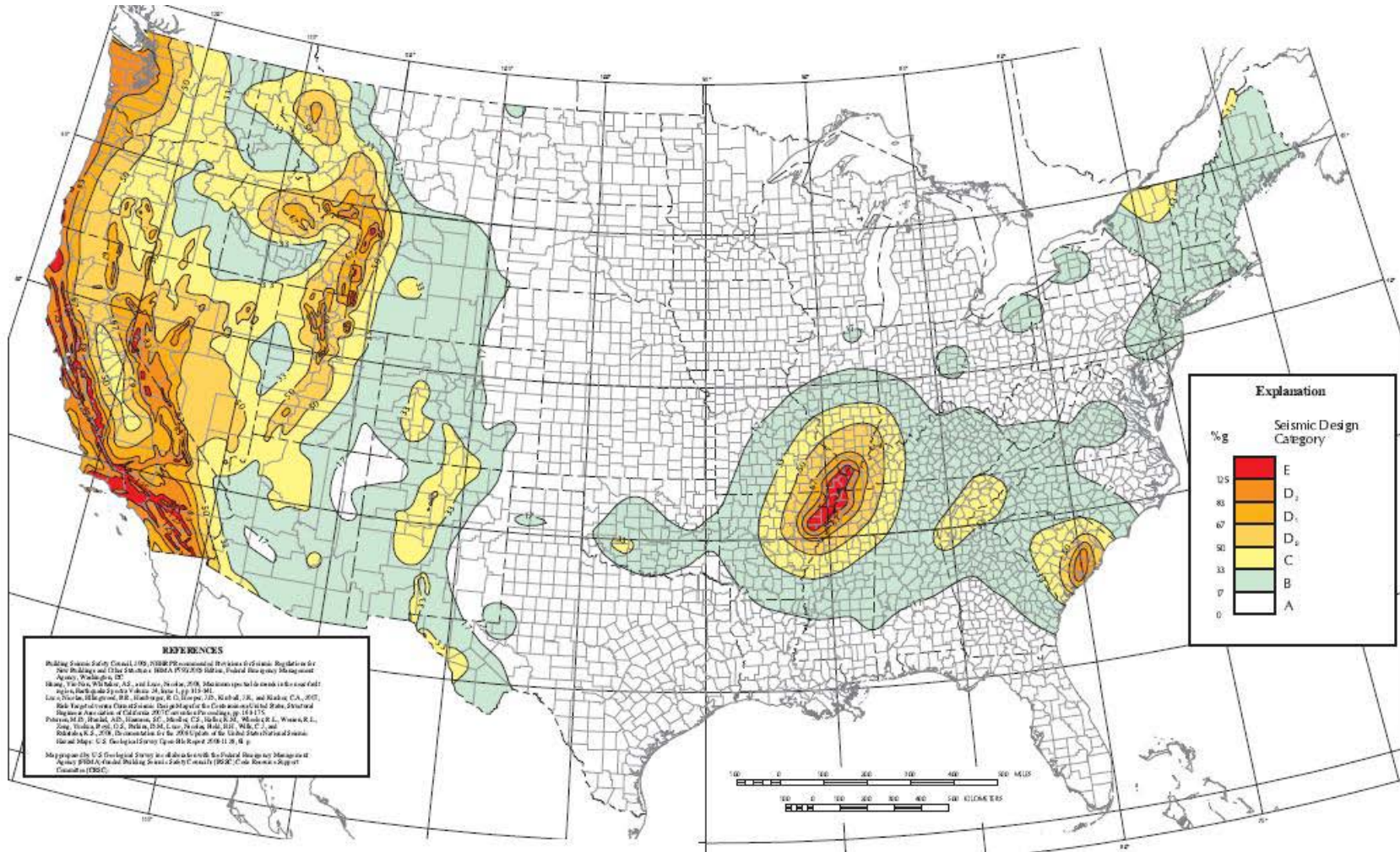
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The New Seismic Risk Map



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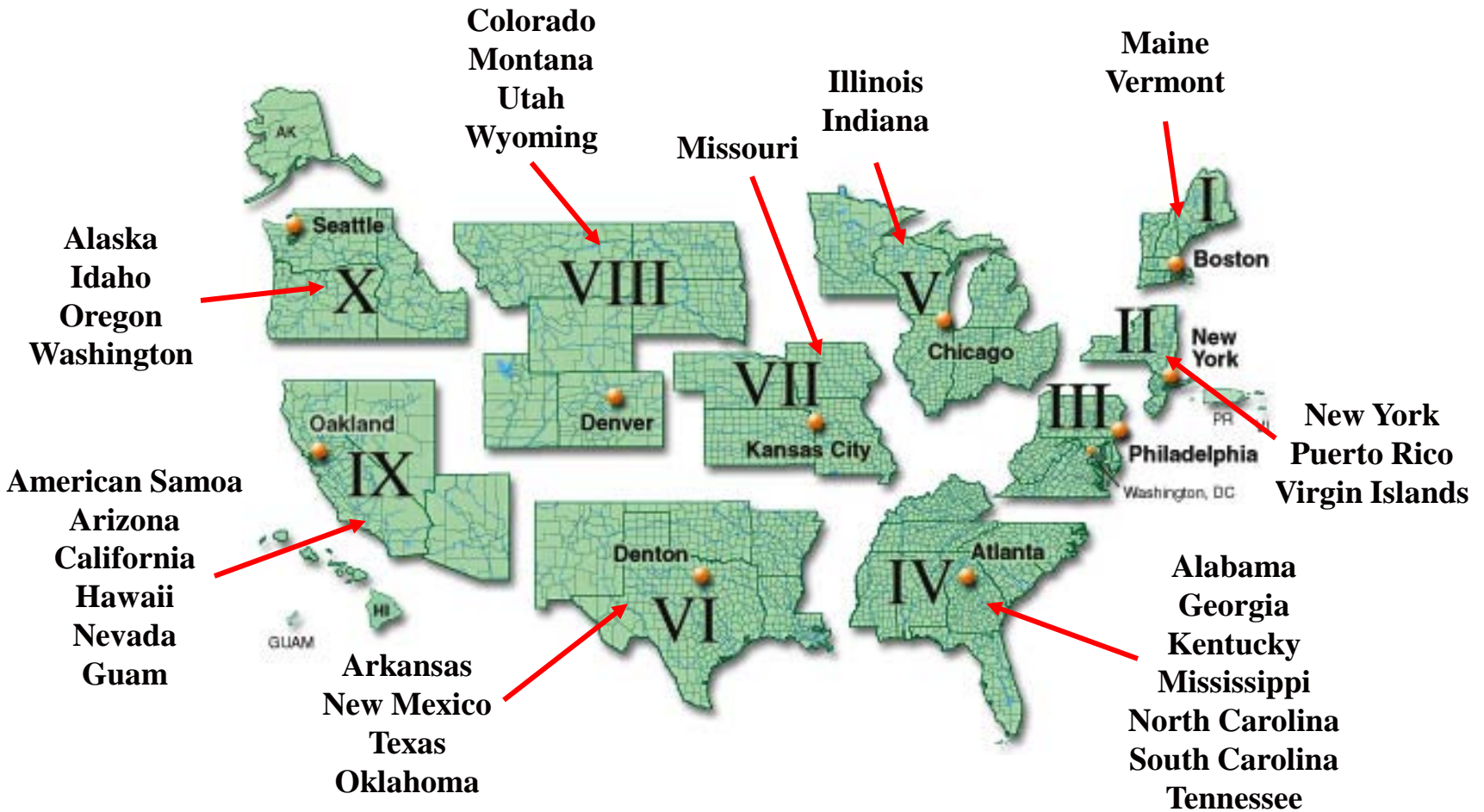


State Seismic Risks by the New Map

	2010 State EQ Assistance Program				
	Very High Risk SDC E	High Risk SDC D	Moderate Risk SDC C	Some Risk SDC B	Low Risk SDC A
FEMA Region 1			ME, VT	RI, MA, NH, CT	
FEMA Region 2		NY, PR, VI		NJ	
FEMA Region 3				VA, WV, MD, DE, PA	
FEMA Region 4	KY, TN	MS, SC	GA, NC, AL,		FL
FEMA Region 5	IL	IN		OH	MI, WI, MN
FEMA Region 6	AR	NM,	TX, OK	LA	
FEMA Region 7	MO			NE,	IA, KS
FEMA Region 8	WY	UT, MT	CO	ND, SD	
FEMA Region 9	CA, NV, HI	AZ, Guam, American Samoa			
FEMA Region 10	AK, OR	WA, ID			



FY 10 EQ State Assistance Program



Eligible States



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Allocation Criterion

- FY10 funds (target allocations) are proposed to be allocated among 33 eligible states
- Each state will receive a base level funding
- Remaining funding will be allocated based on each state's weighted exposure to the earthquake peril per FEMA P-366 (HAZUS MH Estimated Annualized Earthquake Losses for the United States)



FY 2009 and FY 2010
Budget numbers

FY 2009 and FY 2010 Budget numbers

- FY 2009 - \$9.133M allocated (\$23.8M Authorized)
- FY 2010 - \$8.977M allocated (Appropriations Report calls for \$8.977M - \$10.2M Authorized in House draft)



Challenges and Opportunities

Looking Forward – Challenges & Strategies

- Available Resources/Performance-Based Program, Community Partnerships.
- Level of State Assistance/Seek Additional support from and for States.
- Local Amendments to Building Codes/Work with Code Groups/Jurisdictions to Limit Amendments.
- Critical Infrastructure & Lifelines Guidance/Additional Funding Needed.
- Program Implementation/EQ Awareness (QuakeSmart), Tell Story Better.



Available Resources

- Challenge – Decline in funding over time.
- Challenge – Reduction in program staff.
- Strategy – Show program value thru performance.
- Strategy – Increased funding & staffing thru agency request process – partial success in FY 2009 w/ two additional staff and \$2.3M for State Assistance.
- Strategy – Increase emphasis on partnerships.



Level of State Assistance

- Challenge - Lost visibility of State EQ Hazard Mitigation Assistance within EMPG.
- Strategy – Working to re-establish assistance for State Earthquake Hazard Mitigation programs – partial success.
- Strategy – Re-establish visibility of Earthquake activity in EMPG with strong input from States.



Amending Building Codes

- Challenge – State and local jurisdictions amend and weaken disaster provisions of their building code.
- Strategy – Work cooperatively with ICC and State/local jurisdictions to limit weakening amendments.



Critical Infrastructure & Lifelines

- Challenge – funding for infrastructure and lifelines activity virtually eliminated.
- Strategy – additional funding needed to address adequately.



Program Implementation

- Challenge – Program implementation activities are not seen as sufficient or effective.
- Strategy – Develop initiative to improve public understanding and awareness of NEHRP (Quake Smart).
- Strategy – Develop ongoing outreach and implementation effort addressing communication, training, pilot projects, partnering and program successes.



There are many ways to access our information

- www.fema.gov/hazards/earthquakeindex.shtm
- www.quakesmart.org
- www.atcouncil.org
- www.bssconline.org



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There are many ways to access our information – Others links

- <http://www.fema.gov/rebuild/buildingscience/>
- http://www.fema.gov/rebuild/smart_strong.shtm
- http://books.google.com/books?as_q=FEMA&num=10&btnG=Google+Search&as_epq=&as_oq=&as_eq=&as_brr=0&as_pt=ALLTYPES&lr=&as_vt=&as_auth=FEMA&as_pub=&as_sub=&as_drrb_i_s=q&as_minm_is=0&as_miny_is=&as_maxm_is=0&as_maxy_is=&as_isbn=&as_issn=
- (that gets you most of our google books presence)
- http://www.fema.gov/plan/prevent/saferoom/sr_resources.shtm
- <http://www.fema.gov/plan/prevent/howto/index.shtm>
- <http://www.fema.gov/plan/prevent/rms/index.shtm>
- <http://www.fema.gov/rebuild/buildingscience/news.shtm>
- <http://www.fema.gov/rebuild/buildingscience/publications.shtm>
- <http://www.fema.gov/rebuild/buildingscience/resources.shtm>
- <http://www.fema.gov/plan/prevent/earthquake/nehrrp.shtm>
- <http://www.fema.gov/plan/prevent/earthquake/publications.shtm>
- <http://www.fema.gov/plan/prevent/earthquake/state.shtm>
- <http://www.fema.gov/plan/prevent/earthquake/links.shtm>





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