

JAEE Kobe Tenth Anniversary Symposium
January 13 to 15
Awaji Island, Kobe

Panel Discussion
From research to implementation:
making retrofit a reality

15 January, 2005
From 3:00 PM – 5:30 PM

Reported by
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Scope

“Panel Discussion” focused on addressing the **construction problems** of communities throughout the world with **limited or non-engineered buildings** in **seismic** areas. These problems have contributed to extensive loss of lives in the past and represent great threats for the future, especially in **densely populated** regions.

Resolutions [1/3]

- 1) **Raising the awareness** of the international community about the extent of the **technical construction problems** and the **socio-economical realities** in seismically vulnerable regions
- 2) **Developing feasible solutions** to the construction problems and the necessary educational and training programs
- 3) **Establishing collaboration mechanisms** between local and international parties, including practitioners, researchers, social scientists, economists, and local authorities

Resolutions [1/3]

- 1) Raising the awareness of the international community about the extent of the technical construction problems and the socio-economical realities in seismically vulnerable regions
 - a) **Select one or more densely populated mega cities with high seismic risk for the development of integrated multidisciplinary demonstration projects.**
 - b) **Create a major campaign to inform owners of the underlying seismic vulnerability of their buildings with the direct involvement of advertising and marketing specialists.**
 - c) **Create an international entity like the World Health Organization for Buildings (perhaps within existing UN entities.)**

Resolutions [2/3]

- 2) Developing feasible solutions to the construction problems and the necessary educational and training programs
 - a) **Convert comprehensive documents of retrofit techniques into simple and low-cost guidelines for the end-users considering local conditions in terms of materials and construction techniques dictated by socio-economical realities.**
 - b) **Establish an international initiative on the retrofitting of school buildings which have common features all over the world to effectively introduce communities to mitigating seismic risk.**

- ❑ Compatibility to Local Practice
- ❑ Use of Available Materials

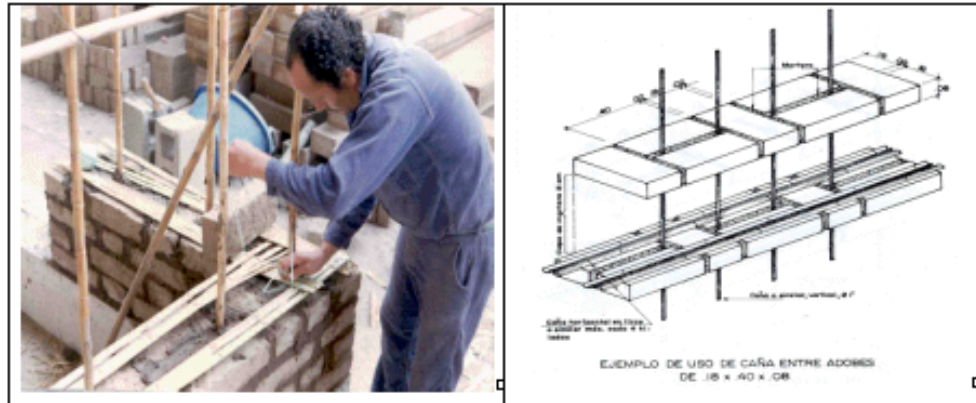


Figure 11 – Construction of Cane Reinforcement In Peru (Blondet et al., 2002)

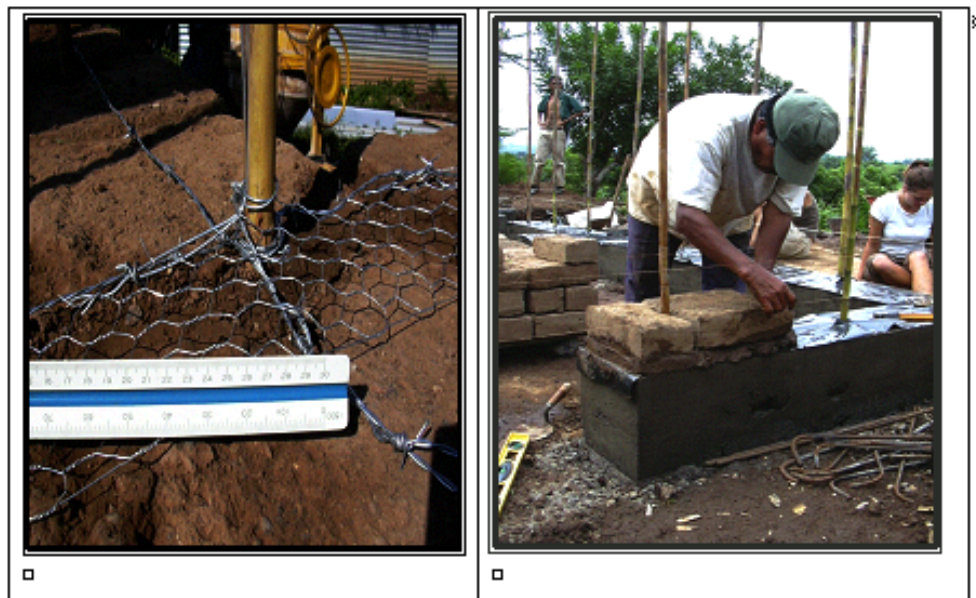


Figure 12 – Construction of Cane Reinforcement In El Salvador (Downing, 2002)

Seismic Feature – Installation of Cane Reinforcement

☐ Usefulness to End-Users

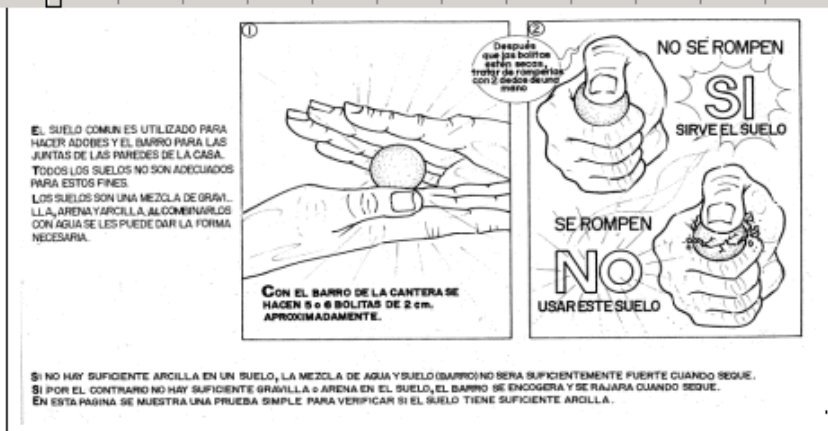


Figure 6 – Dry Strength Test (Pouch/Coid, 1995)

- Roll test: field alternative for choosing the soil; using both hands, make a little mud roll. If the unbroken length of the roll is between 5 to 15 cm, the soil is adequate. If the roll breaks with less than 5 cm, the soil must not be used. If the unbroken roll is longer than 15 cm, coarse sand must be added. (CTAR/COPASA, 2002).



Figure 7 – Roll Test (CTAR/COPASA, 2002)



Details Manuals and Guidelines

Tutorial on Construction of New Adobe Houses

Retrofit of School Buildings



Taiwan



Reuters

Algeria

Resolutions [2/3] (continued)

- 2) Developing feasible solutions to the construction problems and the necessary educational and training programs
- c) Establish proper mechanisms for financing both the development and the implementation of the solutions. Initiate and encourage efforts to invest and act before earthquakes as preemptive action rather than just post-disaster relief.**
- d) Establish the proper measures to assure the implementation of code provisions in regions of pre-disaster investments.**

Resolutions [2/3] (continued)

- 2) Developing feasible solutions to the construction problems and the necessary educational and training programs
- e) **Develop educational and training programs targeting the local communities, including professionals, contractors, construction workers, government officials, and the public with the objectives of encouraging end-users to appreciate and implement seismic mitigation actions.**

Ultimate Quality depends on them!



Resolutions [3/3]

- 3) Establishing collaboration mechanisms between local and international parties, including practitioners, researchers, social scientists, economists, and local authorities
 - a) Encourage the international exchange of information, including to organize and support specialty and multidisciplinary conferences on all aspects of the problem regularly.
 - b) Support existing international organizations such as “Engineers without Borders” for implementations of sample demonstration projects.

Resolutions [3/3] (continued)

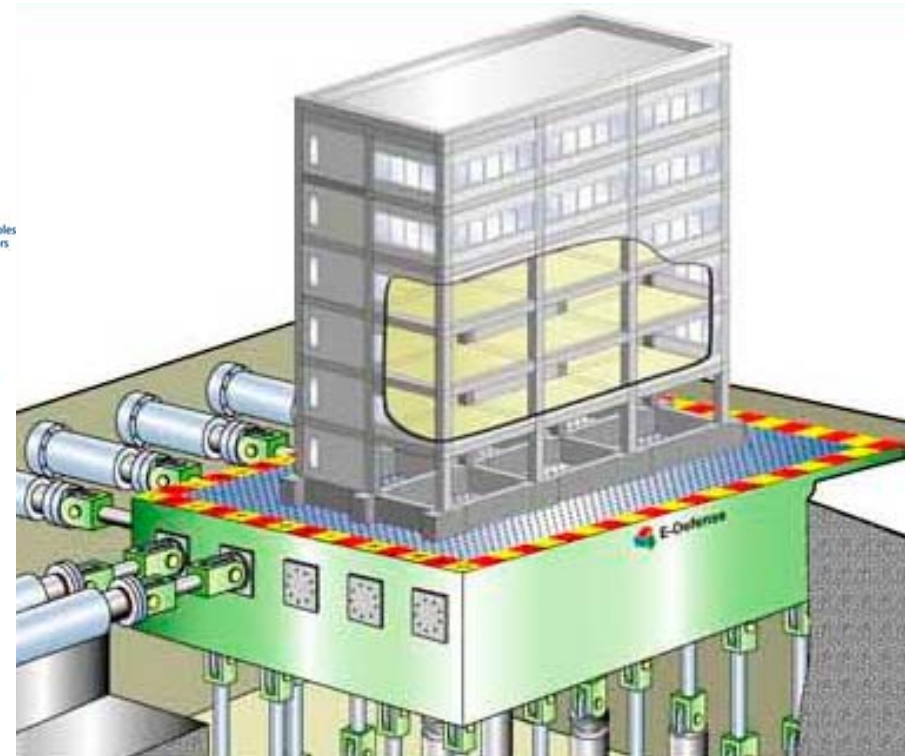
- 3) Establishing collaboration mechanisms between local and international parties, including practitioners, researchers, social scientists, economists, and local authorities
- c) Support the international collaboration for full-scale experiments using E-Defense, NEES, and other international facilities to validate the proposed solutions and to create effective audio-visual demonstrations for educating and convincing the end-users of the importance of seismically resistant construction.**

Advantage of large testing facilities for collaboration, education, and training on seismic upgrade of non- and little-engineered buildings



NEES (USA)

Network for Earthquake Engineering Simulation



E-Defense (Japan)

World Largest Shaking Table

Resolutions [3/3] (continued)

- 3) Establishing collaboration mechanisms between local and international parties, including practitioners, researchers, social scientists, economists, and local authorities
- d) Expand and enhance the EERI/IAEE “World Housing Encyclopedia” into an accessible global repository for information on practical seismic safety measures including all recommendations presented in these resolutions.**



WORLD HOUSING ENCYCLOPEDIA



As a contribution to
the ISDR



aecportico

site of the week



To skip Intro



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If no image displays above:

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- Project launched in January 2000
- Over 180 participants from 50 countries
- Over 100 contributions describing housing construction posted on the project's web site