

WORLD ADOBE FORUM – PROJECT LAUNCH

Dominic Dowling¹

ABSTRACT

The World Adobe Forum is an exciting new medium for the sharing of information related to adobe mudbrick research and application, focusing on understanding and reducing seismic vulnerability. The web-based forum is being supported by the Earthquake Engineering Research Institute (EERI), the International Association for Earthquake Engineering (IAEE), the EERI-IAEE World Housing Encyclopaedia and a multi-disciplinary panel of experts and advocates from around the world. The World Adobe Forum will be come on-line in mid - late 2005 and will be accessed via:

www.worldadobeforum.eeri.org.

The forum will include submissions from all areas related to adobe within a seismic context, including: experimental testing and analysis, field research and application / implementation. Contributions will encompass social and technical, academic and practical aspects of adobe, and focus on the processes and outcomes (inclusive of successes, lessons learned, problems and solutions). Submissions will be initially welcomed in English and Spanish and will be peer-reviewed prior to posting on the website.

It is with great pleasure that we will launch the World Adobe Forum at SismoAdobe2005 in Peru. The launch will include the release and tour of a preliminary website, including a number of sample submissions and explanation of the background, objectives and scope of the project. It will also provide an opportunity for feedback and an invitation for delegates to be actively involved in the development of the forum.

It is envisaged that the World Adobe Forum will become the premier global adobe information hub, covering the full spectrum of aseismic adobe-related information from around the world. It is hoped that via the World Adobe Forum this valuable information will be more effectively transferred to application in the field, making inroads in the challenge to reduce the vulnerability of adobe houses in high risk areas around the world.

BACKGROUND

Adobe (mudbrick) houses have been the predominant form of low-cost housing in many parts of the world for many centuries. The vulnerability of traditional adobe housing to seismic forces is widely known; each decade, hundreds of thousands of adobe houses are damaged or destroyed in severe earthquakes around the world. Despite the necessity to undertake valuable research to reduce this vulnerability, the majority of global research resources are allocated to consider the performance of so-called 'modern' materials (e.g. steel, concrete, composites) and advanced systems (e.g. passive and active control). This resource allocation imbalance adds further gumption to the call to more effectively share information and act collaboratively in the quest to reduce the vulnerability of non-engineered construction.

In spite of this imbalance a variety of valuable research has been and is being conducted around the world, focusing on different methods to improve the seismic resistance of adobe structures. This research includes the testing and analysis of soils, bricks, prisms,

¹ University of Technology, Sydney, Australia, dominic.m.dowling@uts.edu.au

walls and houses. Furthermore, a host of implementation projects have concentrated on promotion, training and construction of improved adobe houses, as well as the strengthening and repair of existing dwellings. Various adobe advocates have recognized the scattered and disjointed nature of this information, and this is seen as an obstacle to the widespread dissemination of important findings and the further advancement in research and application. The World Adobe Forum endeavours to address this situation.

A recent opinion paper (Comartin, *et al*, 2004) issued a challenge to earthquake engineering professionals to assume responsibility and take action to reduce the earthquake vulnerability in developing countries. The opinion paper identifies the problem (including the large disparity between losses in developed and developing countries), describes current efforts (including local initiatives and international networks) and proposes some future possibilities (including enhanced international collaboration, information exchange and recognition). The World Adobe Forum supports these future possibilities, whilst building upon and encouraging existing efforts.

Similar issues were raised in a report prepared by an ad-hoc committee of the International Association for Earthquake Engineering (Jain, *et al*, 2004) which recommended a variety of initiatives for improving earthquake engineering practice worldwide, with particular reference to developing countries. The World Adobe Forum fits appropriately with the recommended actions, including: raising global awareness towards earthquake mitigation issues; development of human resources; and dissemination of information.

The concept of the World Adobe Forum was launched and warmly welcomed at the Earthquake Engineering Research Institute 57th Annual Meeting in Ixtapa, Mexico in February 2005 (Dowling, *et al*, 2005).

OBJECTIVES AND BENEFITS

The main objective of the forum is to provide a medium for the sharing of information related to improved-adobe research and application. As this information becomes more widely available, a number of direct benefits are envisaged, including:

- Increased exposure and profile for adobe research and application;
- Improved exchange of ideas, questions, concerns, problems and solutions between the different stakeholders (beneficiaries, practitioners, supporters, researchers);
- Greater consistency of testing, and therefore greater confidence and compatibility of results;
- Increased opportunity to learn lessons about which testing and construction methods are practical and effective, and which methods require further research and improvement;
- Enhanced capacity to more effectively identify future research needs and the resources required to respond to these needs;
- A foundation for the preparation of updated construction guidelines for safer adobe construction.

SCOPE

The forum will welcome submissions in all areas related to adobe, including (but not limited to):

- Experimental testing and analysis (soils, bricks, prisms, wall units and houses; static, quasi-static and dynamic);
- Field research (reconnaissance, damage patterns and statistics);
- Application / implementation (promotion, training, construction, strengthening and repair).

Contributions will encompass social and technical, academic and practical aspects of adobe, and focus on the processes (the 'how'), not just the outcomes. A core component of each submission will be a discussion of the complexity, cost and seismic improvement / vulnerability of each system, which will be based on existing or newly developed rating classifications. Emphasis will be placed on objective accounts of activities, inclusive of successes, lessons learned, problems and solutions. The forum will provide a network linking proponents representing all aspects of adobe. This link is necessary to more effectively identify and address the challenges which exist and make positive advances.

MEANS AND PROCESS

The forum will be a web-based interface, coupled with the existing EERI – IAEE World Housing Encyclopedia (www.world-housing.net/). Authors will download a report template (see Appendix A for sample templates) which will provide a framework for report content and ensure consistency of format and presentation of key information. Authors will complete the relevant sections and submit the report for review. Reports may range in length from 2-3 pages up to 10-15 pages, and authors will be invited to provide links to other related publications and resources. Submissions will be peer-reviewed and then posted on the website. Reports will be searchable and sortable. Contributions will be sought from around the world, with submissions initially welcome in both English and Spanish. (Other languages will be considered if demand and support are available.) As interest and involvement in the forum increases an online discussion board will be established to facilitate discourse related to submissions on the website, as well as other associated matters.

STAKEHOLDERS / PARTICIPANTS

The World Adobe Forum is designed to support the needs and contributions of a variety of stakeholders. Visitors to the site will be able to access practical, up-to-date information, as well as provide valuable feedback based on their own experiences. The forum will provide a direct link between different stakeholder groups (e.g. beneficiaries, practitioners, supporters, researchers) such that practical solutions can be effectively implemented and future research needs can be discussed and addressed. Stakeholders involved in implementation projects (e.g. home builders, non-governmental organisations, government agencies) will be largely interested in complete, practical and applicable solutions. Non-governmental organisations, government agencies and funding donors will be interested in the technical approach and outcomes which are a necessary component of assessing, justifying and endorsing a project. Researchers will be interested in promoting their research findings, receiving feedback on the practical aspects of implementation, as well as identifying future research needs. The World Adobe Forum is designed to address these interests and needs.

Support for the project is being provided by the Earthquake Engineering Research Institute (EERI), the International Association for Earthquake Engineering (IAEE) and the EERI-IAEE World Housing Encyclopedia. Additional individual, organisational and financial support is being sought. A multi-disciplinary forum panel has been formed and is made up of experts and advocates from around the world. The forum panel which will coordinate the project, including defining the forum parameters and format, project promotion, and review and editing of submissions. The forum panel consists of: Ali Memari, Alina Dorian, Anna Lang, Arleen Hill, Bakhtiar Nurtaev, Bijan Samali, Cameron Black, Carlos Ventura, Chitr Lilavivat, Craig Comartin, Dina D'Ayala, Dominic Dowling (Co-ordinator), Elizabeth Hausler, Farzad Naeim, Frederick Krimgold, Gabe Mulford, George Redman, Heidi Faison, Jay Love, Jenny Tanner, Joe Mulligan, Joshua Marrow, Kim Shoaf, Lauren K Stewart, Lisa Keys-Mathews, Luis Esteva, Marcial Blondet, Mario Rodríguez, Marjorie Greene, Mark Klyachko, Masoud Moghtaderi-Zadeh, Omar Cardona, Orhan Gürbüz, Peter Walker, Polat Gülkan, Ravi Subramanian, Roy Tolles, Ryan Hopeman, Shamil Khakimov, Sheldon Cherry, Sohrab Esfandiari, Sudhir Jain, Svetlana Brzev, Terry Dooley, Virginia Rodríguez, Wassim Khan (April 2005). Additional members with interest and experience in this field are welcome.

OUTCOMES

It is envisaged that the World Adobe Forum will become the premier global adobe information hub, covering the full spectrum of adobe-related information from around the world. Interested stakeholders will be able to access up-to-date, relevant information, follow links to obtain further details about specific areas of interest, and engage in meaningful discussion with others. It is hoped that via the World Adobe Forum this valuable information will be more effectively transferred to application in the field, making inroads in the challenge to reduce the vulnerability of adobe houses in high risk areas around the world.

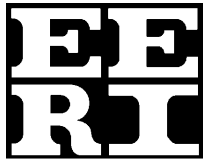
REFERENCES

Comartin C, Brzev S, Naeim F, Greene M, Blondet M, Cherry S, D'Ayala D, Farsi M, Jain S, Pantelic J, Samant L, and Sassu M, 2004. "Opinion paper: A challenge to earthquake engineering professionals". *Earthquake Spectra*, Vol. 20, No. 4 (November 2004), Earthquake Engineering Research Institute, Oakland, California, USA, pp. 1049-1056.

Dowling D, Greene M, Brzev S, 2005. "World Adobe Forum – a new concept". *Proceedings of Earthquake Engineering Research Institute (EERI) 57th Annual Meeting*, 2-6 February 2005, Ixtapa, Mexico.

Jain S, Garcia L, Gülkan P, and Hopkins D, 2004. "New IAEE initiatives for improvement of earthquake engineering practice worldwide with particular reference to developing countries". *International Association for Earthquake Engineering (IAEE)*.

APPENDIX A: SAMPLE REPORT TEMPLATES



WORLD ADOBE FORUM

Sharing information about safer adobe mudbrick construction

www.worldadobeforum.eeri.org



EXPERIMENTAL TESTING / ANALYSIS REPORT TEMPLATE

Title

Key dates

Report No.

Submitted:

Focus (Options: soils / bricks / prisms / walls / houses)

Posted:

Approach (Options: experimental testing / numerical analysis / static / quasi-static / dynamic)

Updated:

Author/s

Affiliation

Contact

Summary / abstract

Keywords

Aims

- What are / were the aims / goals / purposes of the research?

Equipment / specimens

- Equipment (description, location)
- Specimens (quantity, properties, dimensions, boundary conditions, improvement systems, natural frequency)

Method

- Procedure
- Loading (static / dynamic: loading rate, boundary conditions, input spectra, scaling factor, including justification)

Results

Include discussion (with respect to both testing and potential implementation) of:

- Seismic improvement / performance / vulnerability (based on an appropriate rating system);
- Complexity (based on an appropriate complexity rating system);
- Cost (based on an appropriate cost rating system)

Conclusions

- Lessons learned
- Outcomes for application / implementation (least and most appealing aspects)
- Outcomes for further research

References

Links

- Relevant publications, websites, other World Adobe Forum reports



WORLD ADOBE FORUM

Sharing information about safer adobe mudbrick construction

www.worldadobeforum.eeri.org



FIELD RESEARCH REPORT TEMPLATE

Title

Report No.

Focus Country

Author/s

Affiliation

Contact

Key dates

Submitted:

Posted:

Updated:

Summary / abstract

Keywords

Location

- *Specific location (community / village / town, region, country)*

Stakeholders / Collaborators

- *Who was involved in the research (beneficiaries, participants, supporters, donors)?*

Aims

- *What are / were the aims / goals / purposes of the research?*

Process / method / approach

Research findings / results

Include discussion of:

- *Seismic improvement / performance / vulnerability (based on an appropriate rating system);*
- *Complexity (based on an appropriate complexity rating system);*
- *Cost (based on an appropriate cost rating system)*

Outcomes / Conclusions

- *Lessons learned*
- *Outcomes for further application / implementation (least and most appealing aspects)*
- *Outcomes for further research*

References

Links

- *Relevant publications, websites, other World Adobe Forum reports*



WORLD ADOBE FORUM

Sharing information about safer adobe mudbrick construction

www.worldadobeforum.eeri.org



APPLICATION / IMPLEMENTATION REPORT TEMPLATE

Title

Report No.

Focus Country

Action (Options: promotion / training / construction / strengthening / repair)

Author/s

Affiliation

Contact

Key dates

Submitted:

Posted:

Updated:

Summary / abstract

Keywords

Location

- Specific location (community / village / town, region, country)

Stakeholders / Collaborators

- Who was involved in the project (beneficiaries, participants, supporters, donors)?

Aims

- What are / were the aims / goals / purposes of the project?

Resources

- Including personnel, materials, tools, time, money

Process / method / approach

Include:

- Design / model
- Seismic improvement / performance / vulnerability (based on an appropriate rating system);
- Complexity (based on an appropriate complexity rating system);
- Cost (based on an appropriate cost rating system)

Outcomes / Conclusions

- Lessons learned (ie. If you were going to do this project again what would you do a) the same and b) different?)
- Outcomes for further application / implementation (least and most appealing aspects)
- Outcomes for further research

References

Links

- Relevant publications, websites, other World Adobe Forum reports