

# Reclamation Building Seismic Safety Program

## Guideline No. 9

### Nonstructural Hazards Quantification

**Date:** February 11, 2002 (Editorially Revised March 19, 2007)

**Background:** Seismic evaluations performed on Reclamation-owned or -leased buildings may or may not identify potential structural deficiencies but, in almost all cases, potential nonstructural deficiencies are identified. Additionally, potential nonstructural deficiencies may exist in buildings not evaluated and buildings exempted as a result of the screening process (see Briefing Bulletin No. 1). The Nonstructural Hazard Quantification (NHQ) is initiated after the seismic evaluation is completed in order to provide the final identification and quantification of potential nonstructural hazards along with methods and details to mitigate the identified hazards. The most cost-effective time to mitigate the identified nonstructural hazards is dependant upon the scope and complexity of potential structural deficiencies. This guideline will identify the NHQ and nonstructural hazards mitigation schedule options, given the level of seismic risk and the scope of structural deficiencies, necessary to minimize the overall risk exposure and the cost of mitigating nonstructural hazards. The NHQ process is considered a non-reimbursable expense and will be funded by the Reclamation Building Seismic Safety Program (BSSP).

**Guidance:** **Low Seismic Risk Buildings.**—Regardless of the presence of potential structural or nonstructural deficiencies, the BSSP will not recommend that a NHQ be completed. The BSSP will issue a formal response to the client recommending that nonstructural components be mitigated against low probabilistic earthquake hazards at their discretion using program-developed guidelines.

In order to educate the client on how to identify and mitigate potential nonstructural hazards, a copy of the U.S. Department of the Interior's *Nonstructural Hazards Rehabilitation Guidelines, Volumes I and II* will be provided upon request.

**Moderate or High Seismic Risk Buildings with Potential Structural and Nonstructural Deficiencies Identified in a Completed Seismic Evaluation.**—Upon the completion of the seismic evaluation, the NHQ process will be initiated. This process could occur prior to, during, or after a peer review of the completed seismic evaluation, but would generally occur prior to obtaining signature of the Rehabilitation Action Plan (RAP). The scheduling of the initiation of the NHQ will be determined by the BSSP nonstructural rehabilitation and rehabilitation team leaders. When complete, the NHQ report will be transmitted to the client with recommendations that the client proceed

with the mitigation of hazards identified as “Hazard to Be Mitigated by Component Relocation” and “Hazard to Be Mitigated by Scheduled O&M.” This condition is recommended in order to reduce the level of risk to the occupants in a timely manner.

The BSSP nonstructural rehabilitation team leader, in conjunction with the BSSP rehabilitation team leader, will consider those hazards that were identified in the NHQ as “Mitigation by Others,” and will identify those components that could be mitigated before a structural rehabilitation construction project is initiated. Ultimately, the decision to mitigate nonstructural hazards prior to the rehabilitation of potential structural hazards should be made by the client.

**Moderate or High Seismic Risk Buildings With Potential Nonstructural Deficiencies and Without Potential Structural Deficiencies as Identified in a Completed Seismic Evaluation.**—Upon the completion of the seismic evaluation, the NHQ process will be initiated. When complete, the NHQ report will be transmitted to the client with recommendations that the client proceed with the mitigation of hazards identified as “Hazard to Be Mitigated by Component Relocation,” “Hazard to Be Mitigated by Scheduled O&M,” and “Hazard to Be Mitigation by Others”. This condition is recommended in order to reduce the level of risk to the occupants in a timely manner.

The RAP process will be initiated once the NHQ report process is completed. The intent of the RAP is to establish a course of action for the mitigation of the identified seismic deficiencies. The RAP will be used as a Decision Memorandum to plot a course of action to reduce the level of seismic risk. When completed and signed, funds could then be transferred to the Region for nonstructural hazards mitigation, once the client submits an inventoried request as outlined in the *Nonstructural Hazards Rehabilitation Guidelines, Volume I and II*.