

Appendix L

BASE-ISOLATED BUILDINGS LOSS ESTIMATION

One effort to base-isolate a building appears in the sample of earthquake mitigation grants. The question arises, how to model the benefits of this grant, and more specifically, how to model the post-mitigation property loss? HAZUS does not contain loss functions for base-isolated buildings, and the paper grant application does not contain pushover parameters (the parameters required for a HAZUS analysis). While a great deal of structural engineering literature exists on base isolation, it was impossible within a reasonable period of time to discover any generic pushover parameters for base-isolated buildings.

It was therefore assumed for present purposes that base isolation virtually eliminates the expected present value of loss, relative to pre-mitigated conditions. The benefit-cost ratio calculation is fairly insensitive to whether the loss is reduced by 90 percent, 95 percent, or 99 percent; the benefit is essentially equal to the pre-mitigation loss. Since the pre-mitigation loss is not that of a base-isolated building, pushover curves for the base-isolated case become immaterial.

