**PEER Research Concerning Loss Assessment Models and Tools**

**Performance Metrics**
PEER has identified performance metrics that provide valuable information to stakeholders and are useful for building design comparisons:
- Repair costs ("dollars")
- Mobilization plus repair time ("downtime")
- Number of fatalities ("deaths")
- Building safety tagging
- Present value of total earthquake losses

**Damage Models**
Experimental studies used to develop relations between damage and performance.

**Loss Assessment Tools**
Component-based and story-based loss assessment toolboxes were developed to integrate response, damage, and performance.

**Benchmark Study**
- **Damage**: Probabilities of damage are aggregated to determine average damage state for each story.
- **Dollars**: Mean repair losses are calculated for various building components at each hazard level.
- **Downtime**: Total downtime is calculated as the sum of the mobilization and repair times.
- **Deaths**: The expected annual number (EANF) of fatalities may be used to compare designs (e.g., a design without the SCWB provision increases EANF by one order of magnitude).