

PEER Research Concerning Loss Assessment Models and Tools

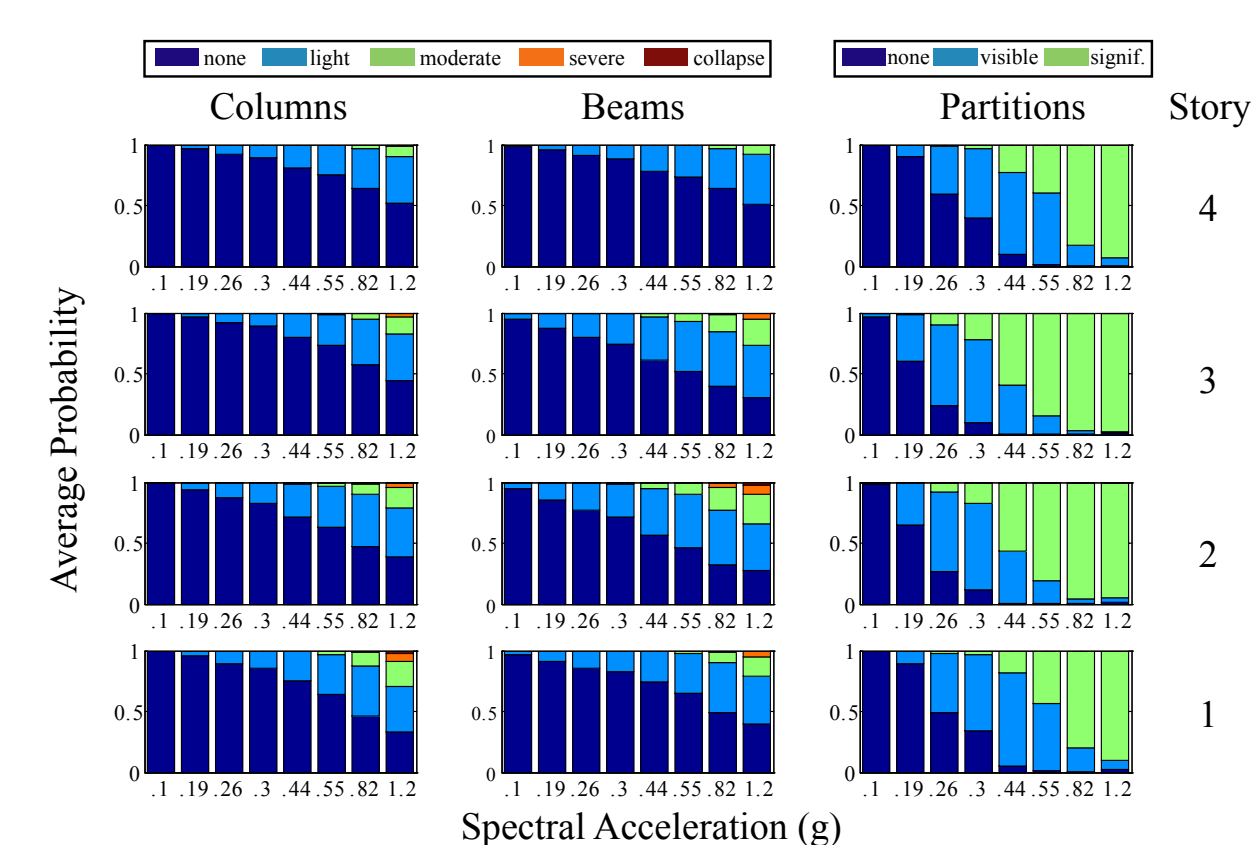
Performance Metrics

PEER has identified performance metrics that provide valuable information to stakeholders and are useful for building design comparisons:

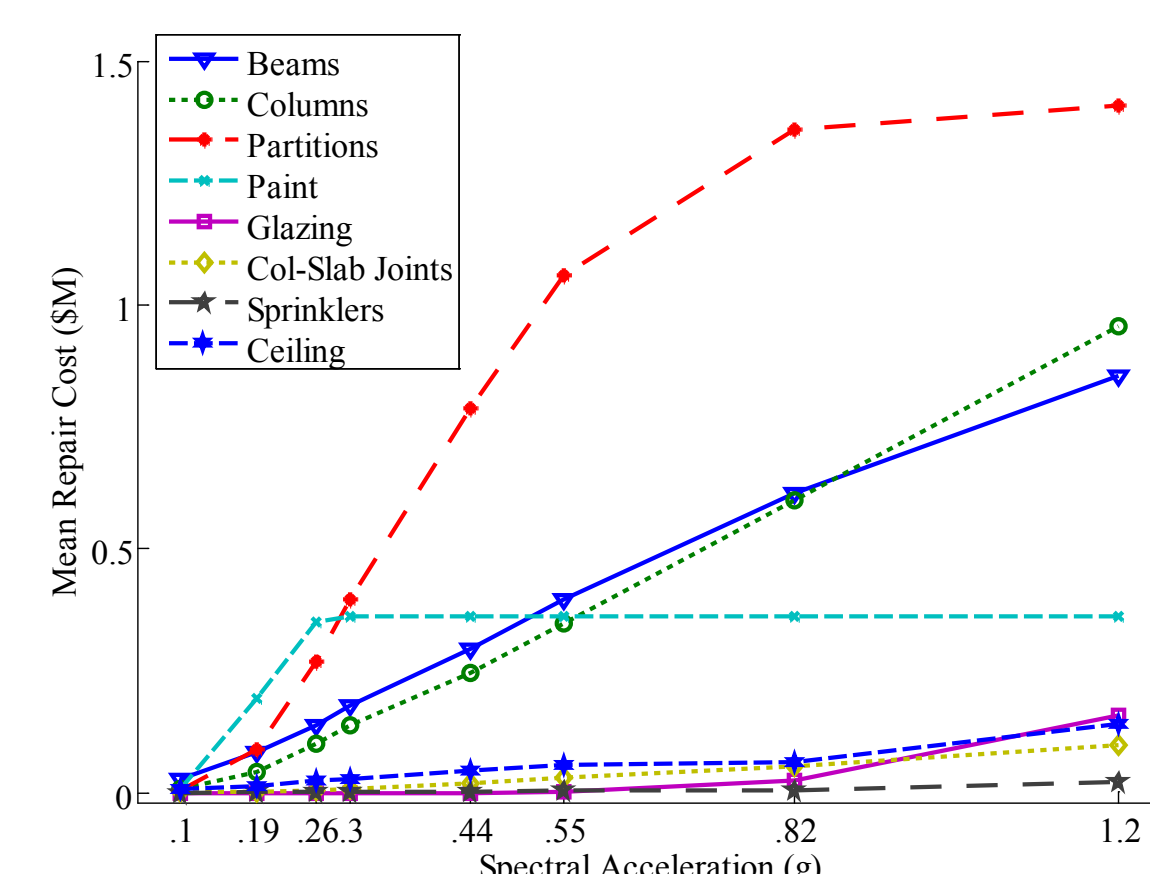
- Repair costs ("dollars")
- Mobilization plus repair time ("downtime")
- Number of fatalities ("deaths")
- Building safety tagging
- Present value of total earthquake losses

Benchmark Study

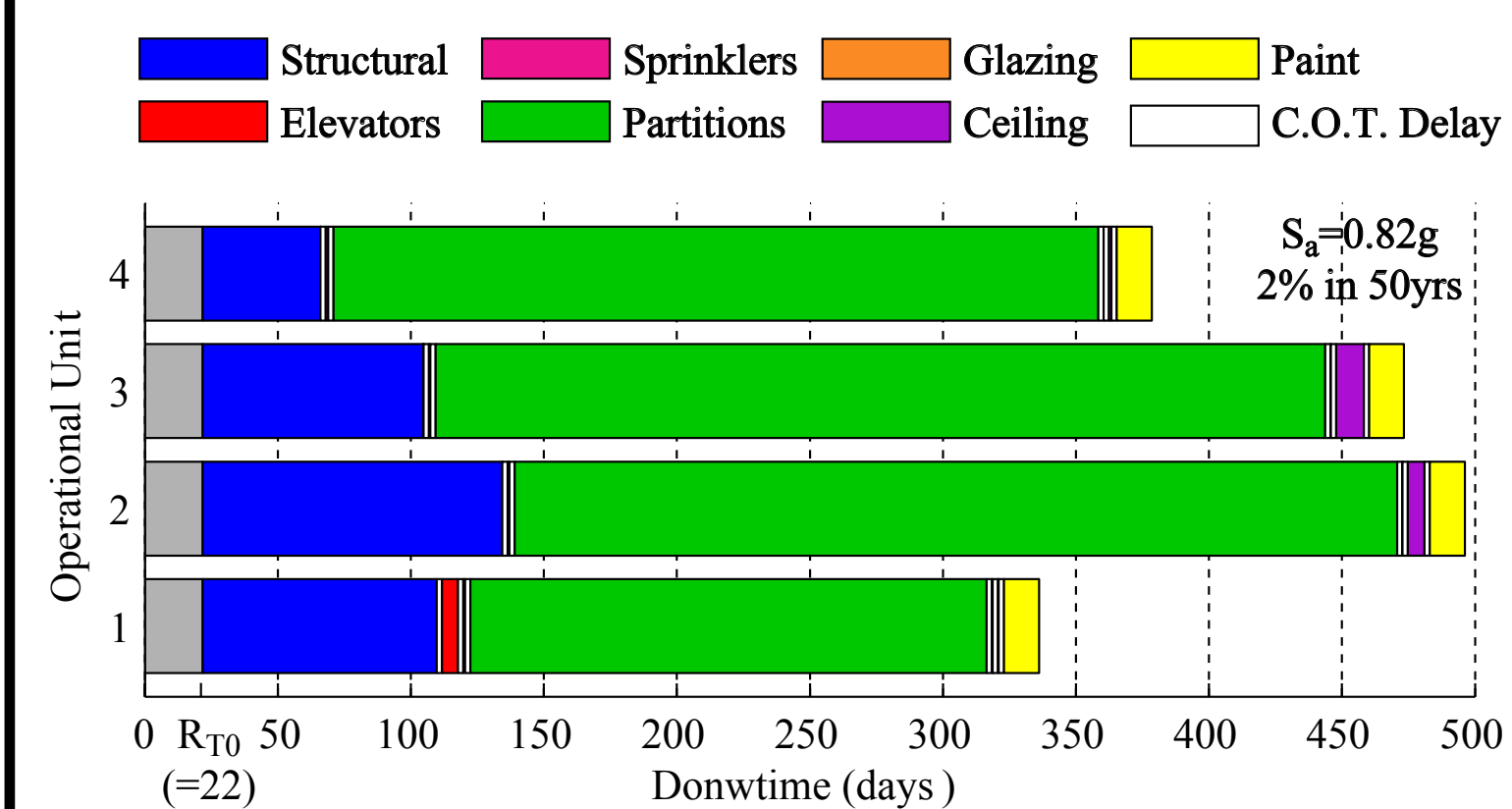
Damage: Probabilities of damage are aggregated to determine average damage state for each story.



Dollars: Mean repair losses are calculated for various building components at each hazard level.



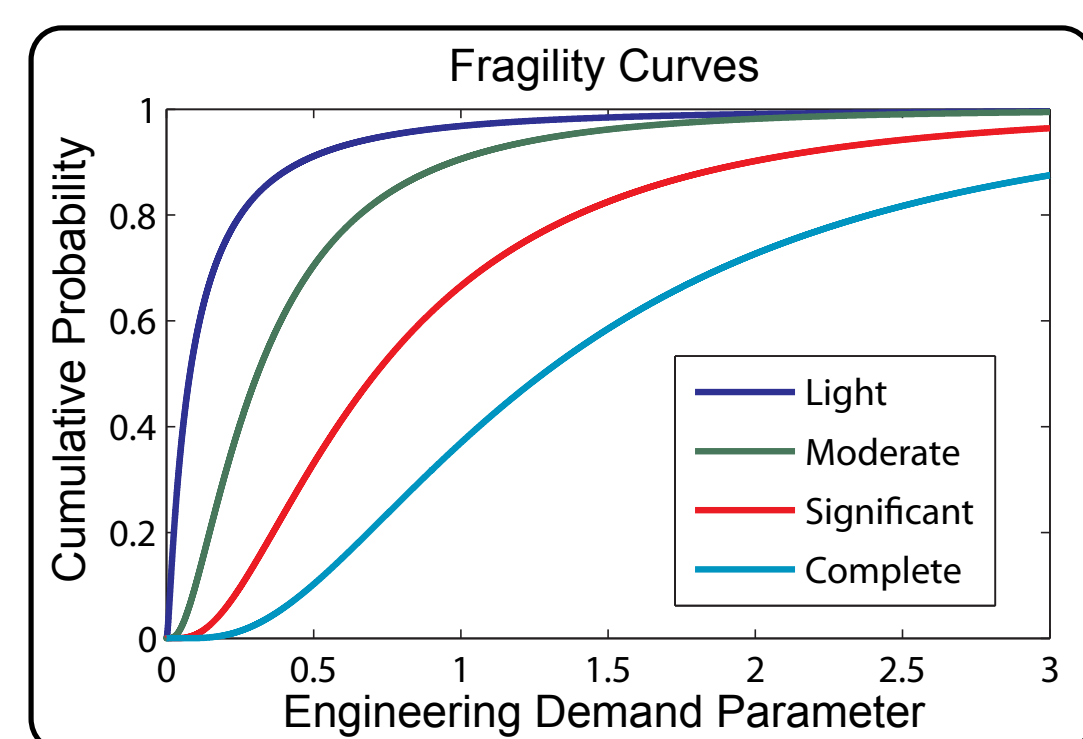
Downtime: Total downtime is calculated as the sum of the mobilization and repair times.



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).

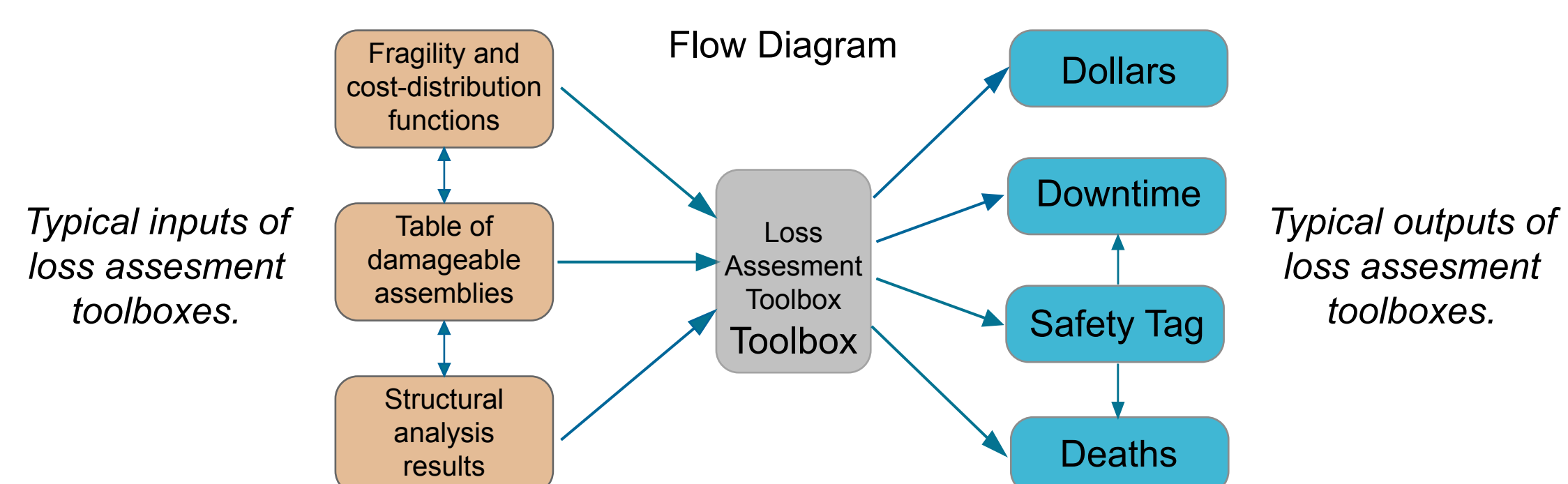
Damage Models

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.



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