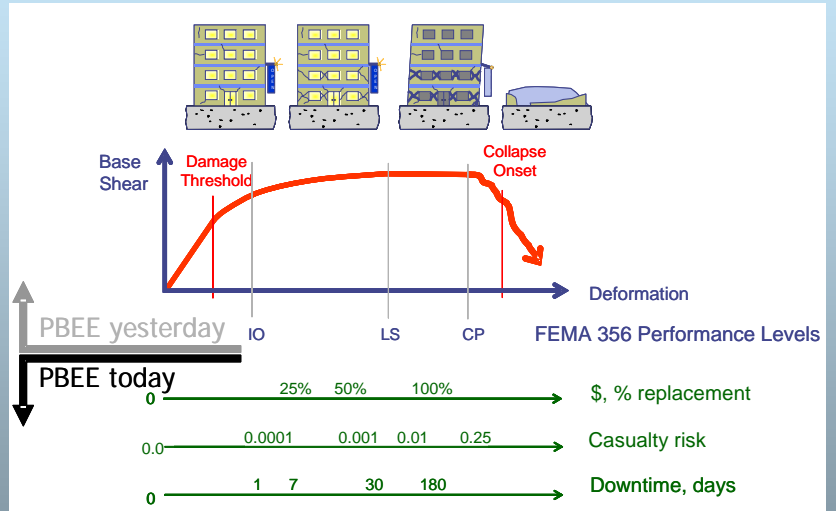


Framework for Performance-Based Earthquake Engineering (PBEE)

The PEER mission is to develop and disseminate technologies to support PBEE. The approach is aimed at improving decision-making about seismic risk by making the choice of performance goals and the tradeoffs that they entail apparent to facility owners and society at large.

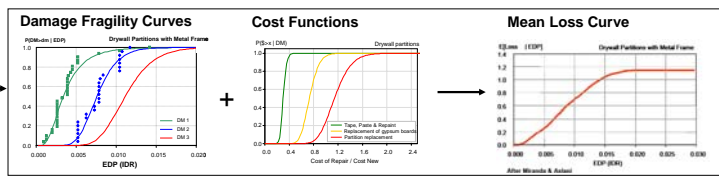


- Measures of Performance:**
- Collapse & Casualties
 - Direct Financial Loss
 - Downtime

Decision Variable

ATC-58 definitions of performance assessment types
Intensity-based: Probable facility performance, given intensity of ground motion
Scenario-based: Probable facility performance, given a specific earthquake scenario
Time-based: Probable facility performance in a specified period of time

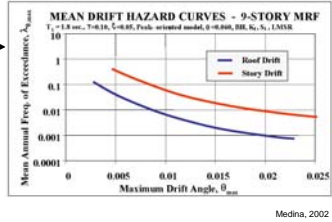
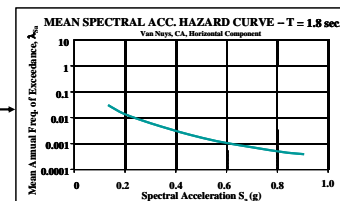
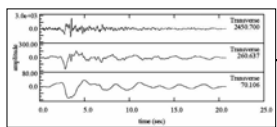
Damage Measure



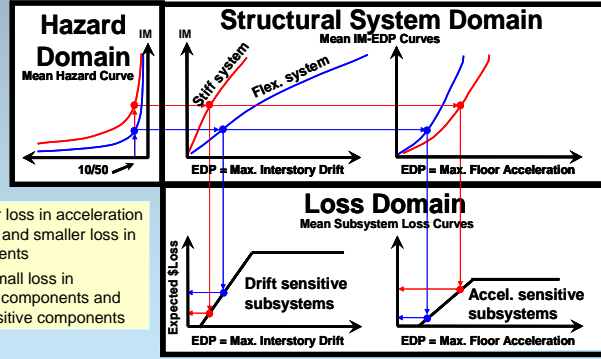
Engineering Demand Parameter



Intensity Measure



Structural System Selection Based on Loss Risk



Stiff Systems: Larger loss in acceleration sensitive components and smaller loss in drift sensitive components
Flexible Systems: Small loss in acceleration sensitive components and larger loss in drift sensitive components

Impact – Implementation:

- **ATC-58** – Guidelines for Seismic Performance Assessment of Buildings
- **ATC-63** – Recommended Methodology for Quantification of Building System Performance
- **TBI** – Tall Building Initiative
- **LRFD** for bridge design

