Workshop Summary

Q & A
Force vs. Displacement Design

Describe both Force and Displacement design approaches using a simple force vs. displacement diagram.
Force-Based Design Approach

Lateral Force

F_{\text{elastic}}

Effect of R

Elastic Response
(no damage)

Ductile Response
(damage permitted)

Δ_{\text{y-system}} Δ_{\text{elastic}} Δ_{\text{ultimate}}

Displacement - Δ

F_{\text{elastic}} / R

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Displacement-Based Design Approach

- Elastic Response (no damage)
- SDC-C demand - $\Delta_D^L$
- SDC-C capacity - $\Delta_C^L$
- Ductile Response (damage permitted)

Note: Only SDC-C design case is shown in diagram.

Lateral Force

- $F_{\text{elastic SDC-C}}$
- $R_d$

Displacement - $\Delta$

- $\Delta_{SDC-B}$
- $\Delta_{SDC-C}$
- $\Delta_{SDC-D}$
- $\Delta_{\text{ultimate}}$

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Displacement - $\Delta$

Lateral Force

$F_{\text{elastic SDC-C}}$

$R_d$

Elastic Response (no damage)

Zones 2-4 (LRFD)

Ductile Response (damage permitted)

$\Delta_{\text{SDC-B}}$, $\Delta_{\text{SDC-C}}$, $\Delta_{\text{SDC-D}}$, $\Delta_{\text{ultimate}}$
Questions?