INVESTIGATING THE EFFECT OF STIFFNESS ON THE SEISMIC PERFORMANCE OF BUILDINGS

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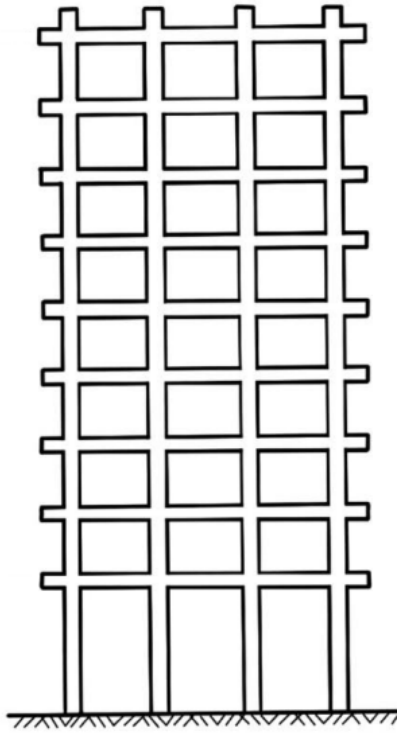
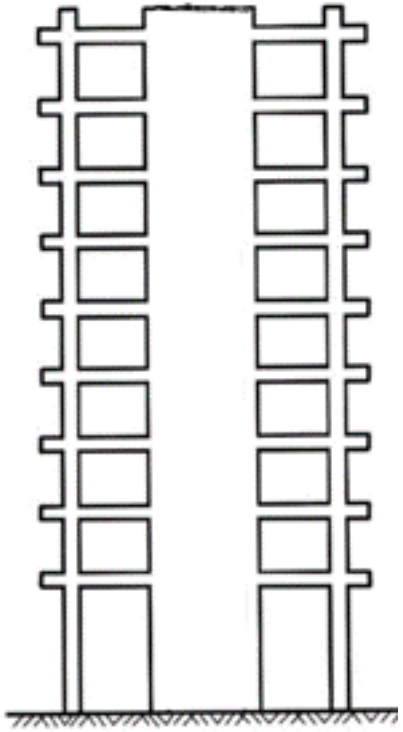


VS



$V_b = 0.3W$

$\mu = 4$

$\Delta_{des} = 2.5\%$

$V_b = 0.3W$

$\mu = 4$

$\Delta_{des} = 0.5\%$

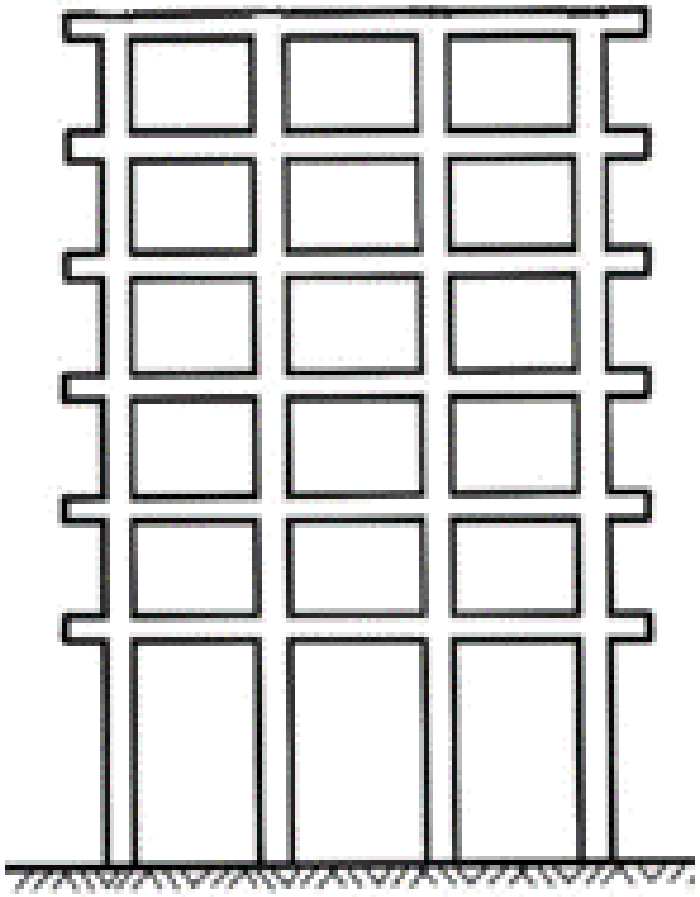
DO STIFFER BUILDINGS PERFORM BETTER?

LITERATURE REVIEW

1. LACK OF QUANTITATIVE EVIDENCE

2. “ACCELERATION-SENSITIVE” ELEMENTS

1. LACK OF QUANTITATIVE EVIDENCE



Building models

- Drift limit: 2.5%, 2.0%, 1.0%, 0.5%

- 3, 6, 10 and 20 storeys
- RC wall, RC frame, Steel MRF, BRBF

LITERATURE REVIEW

1. LACK OF QUANTITATIVE EVIDENCE

2. “ACCELERATION-SENSITIVE” ELEMENTS

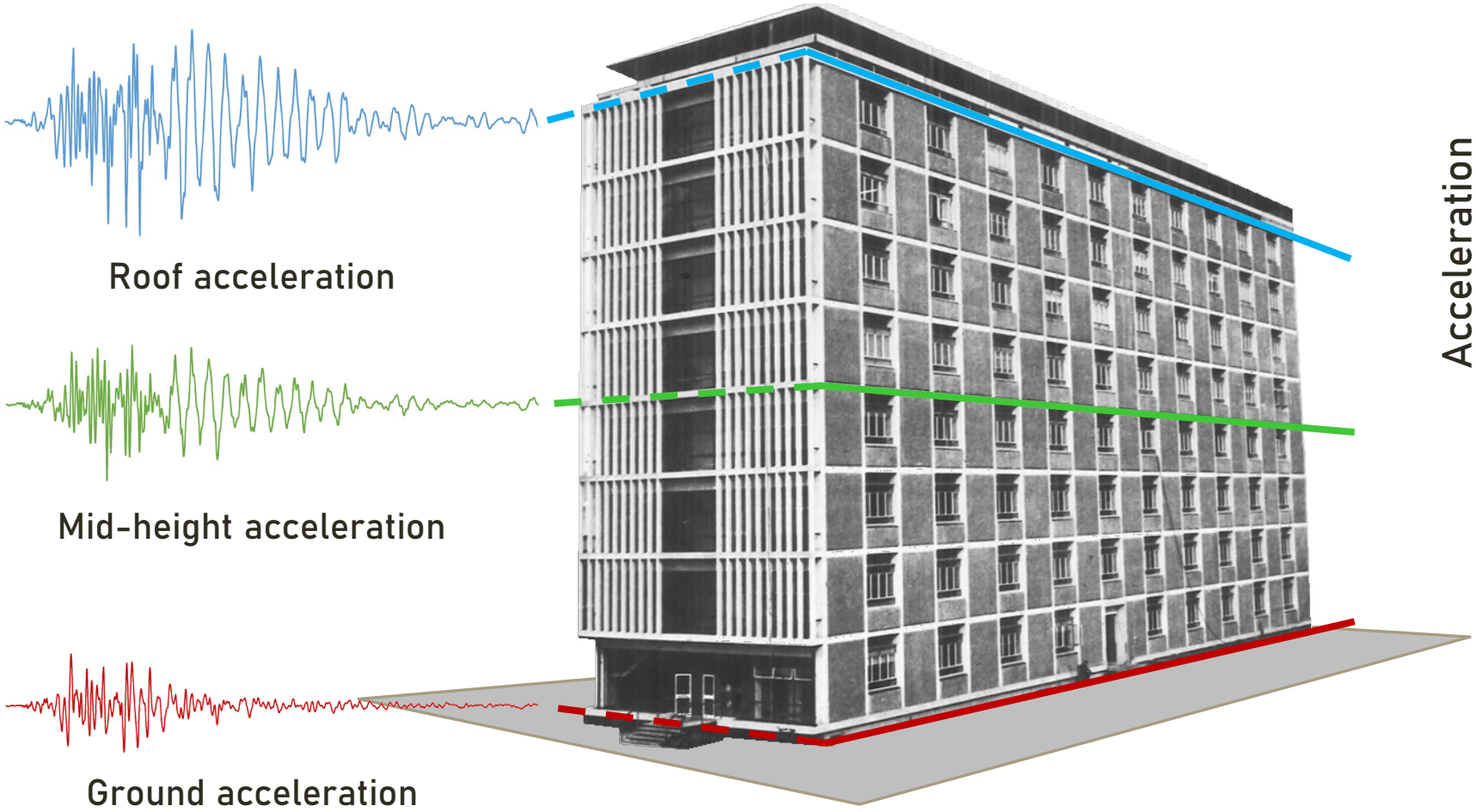
1. "ACCELERATION-SENSITIVE" COMPONENTS

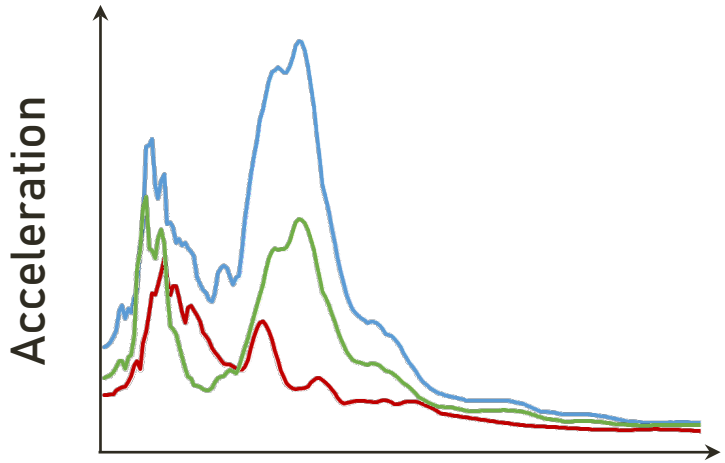
Suspended Ceilings

Rigid Frame

Shake table

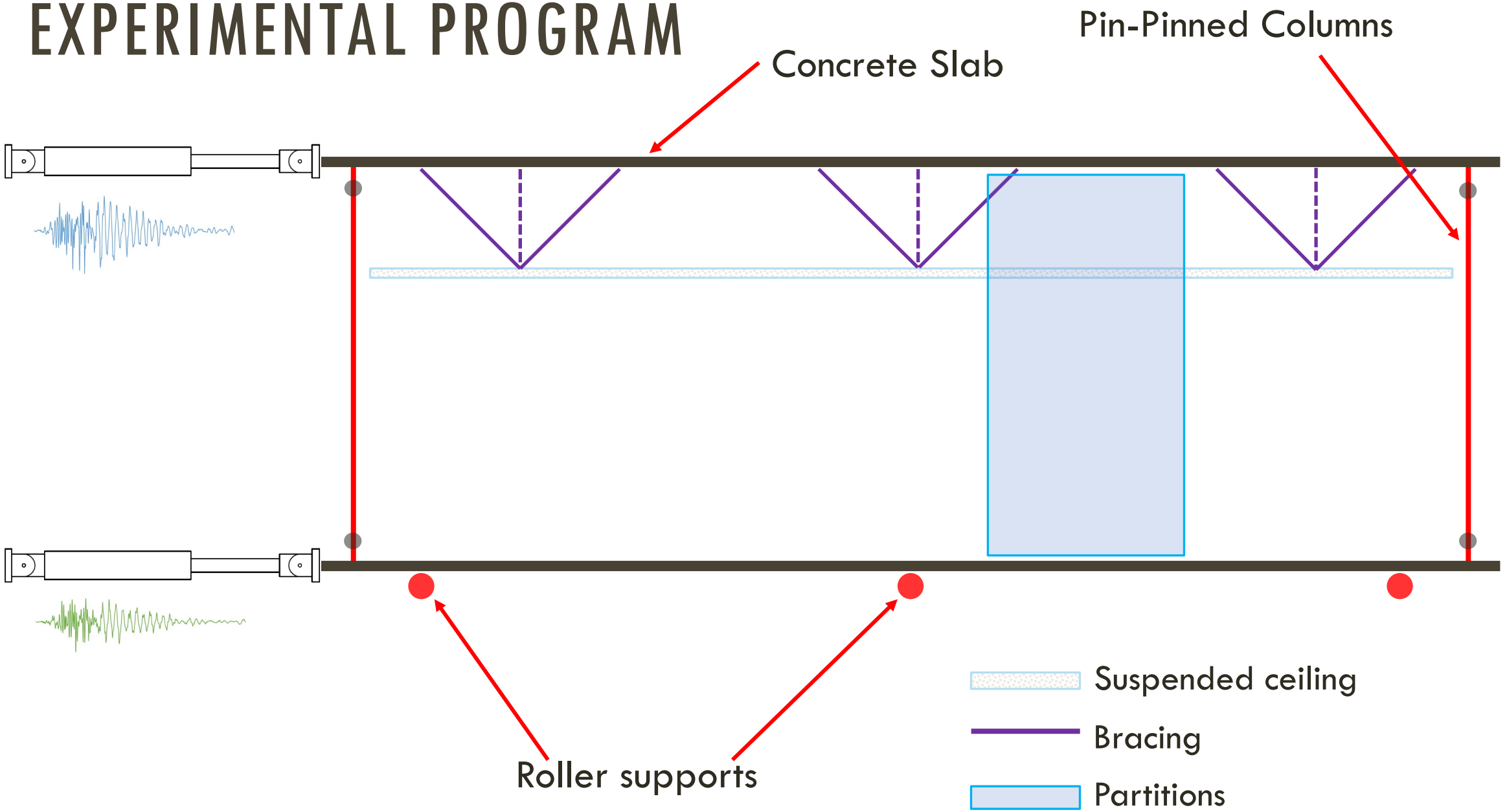
Pourali et al. 2015



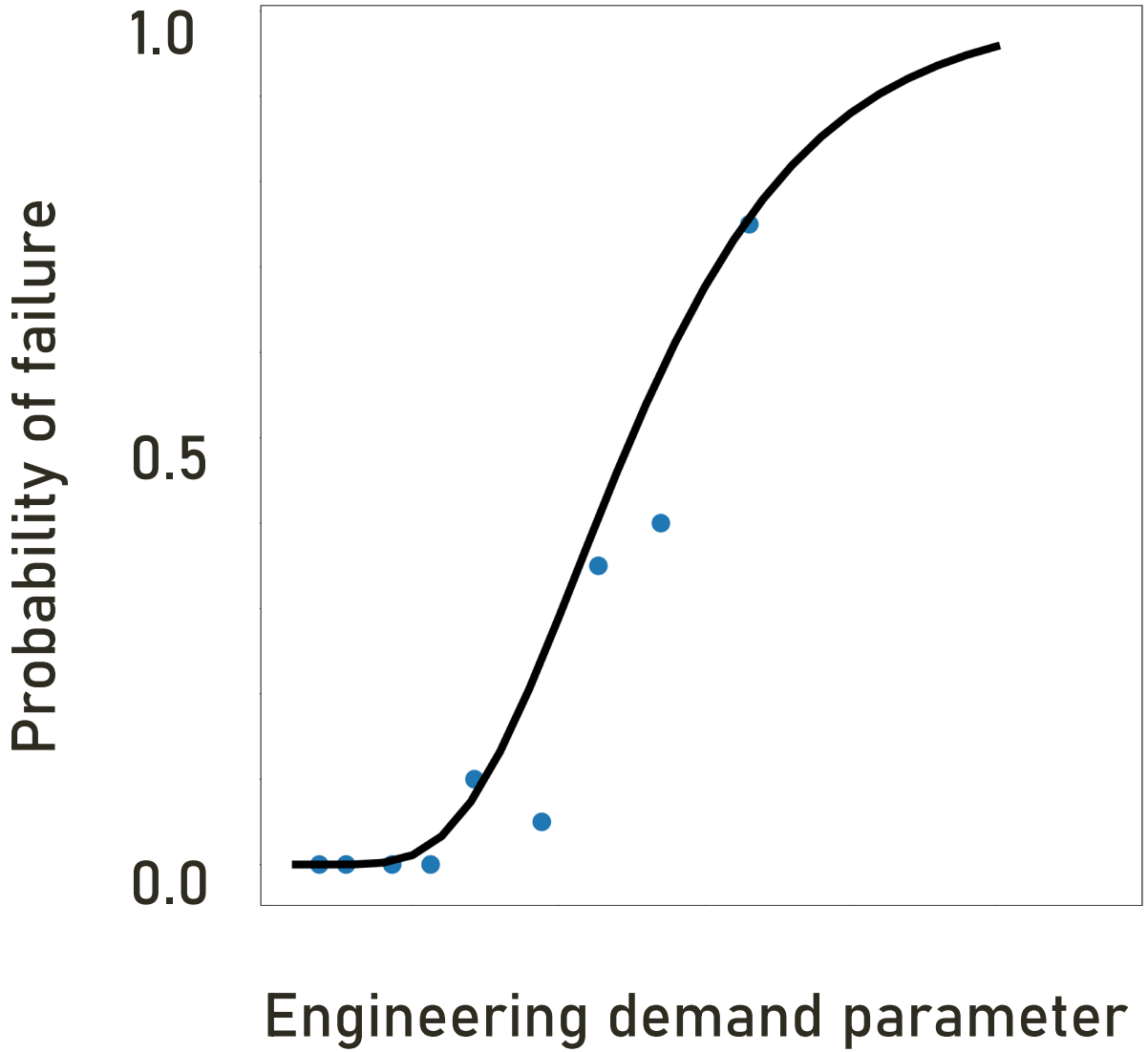


UC Physics building
February 2011 earthquake
(Haymes 2022)

EXPERIMENTAL PROGRAM



Fragility curve for NSE



BENEFITS OF LARGE-SCALE TESTING.

1. STRUCTURE-NSE INTERACTIONS
2. ADDITIONAL DATA
3. VALIDATION/CALIBRATION OF SEISMIC LOSS