



INTERNATIONAL
CODE
COUNCIL®

Functional Recovery - A Code Perspective

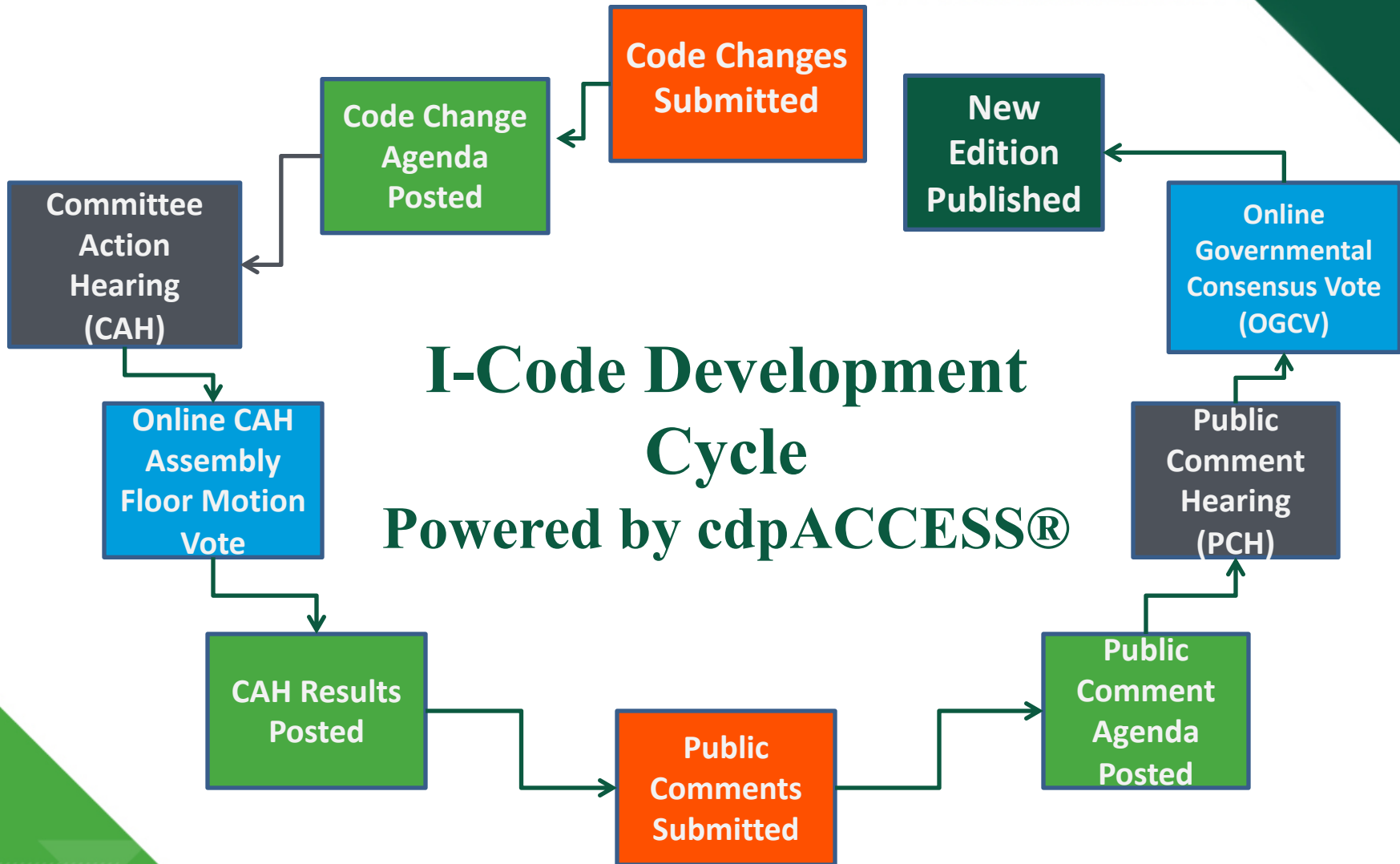
July 25, 2019

THE ICC CODE PROCESS

Mike Pfeiffer, PE

Senior Vice President, Technical Services

International Code Council

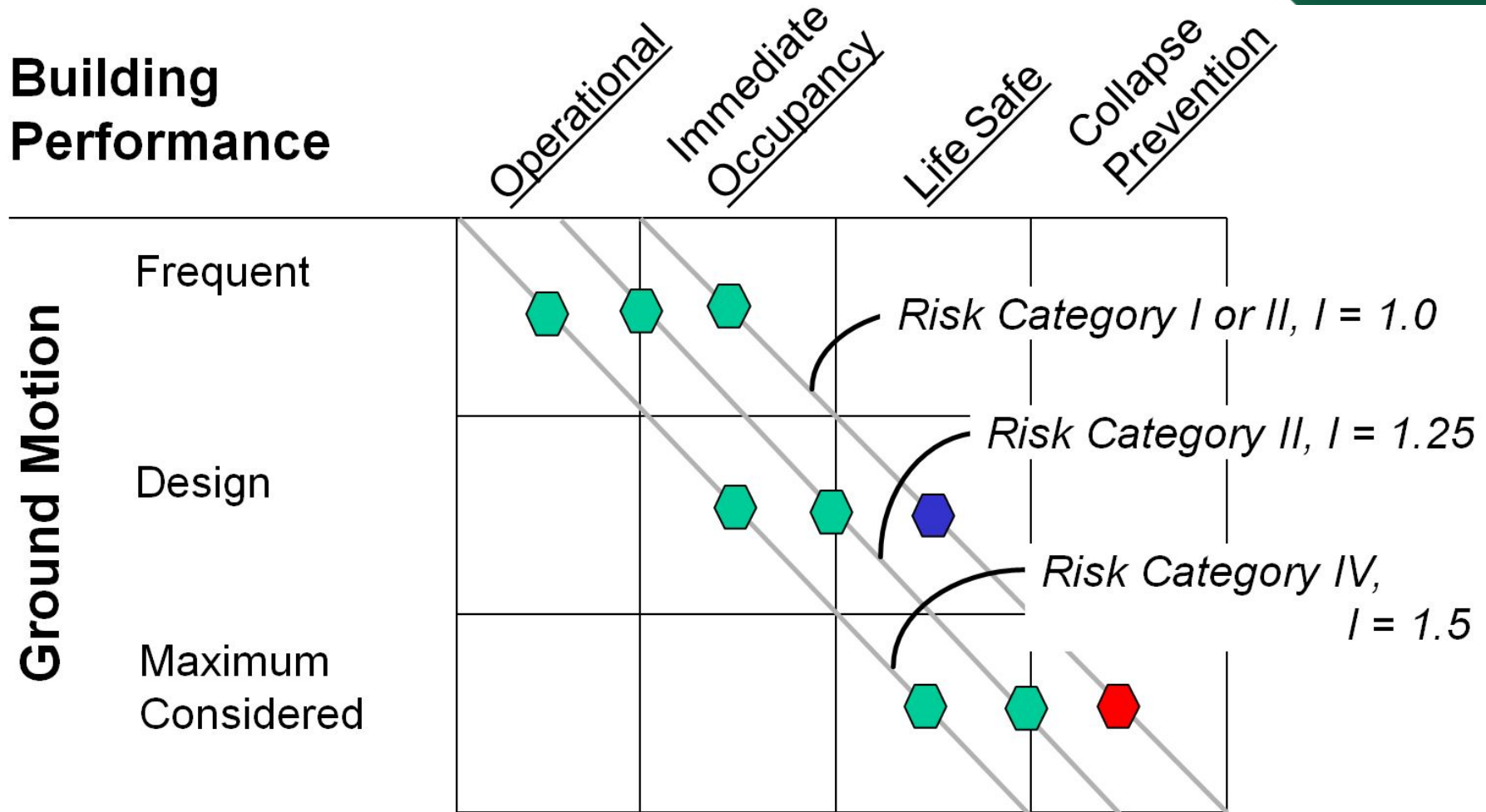


A WORKABLE SOLUTION TO FUNCTIONAL RECOVERY?

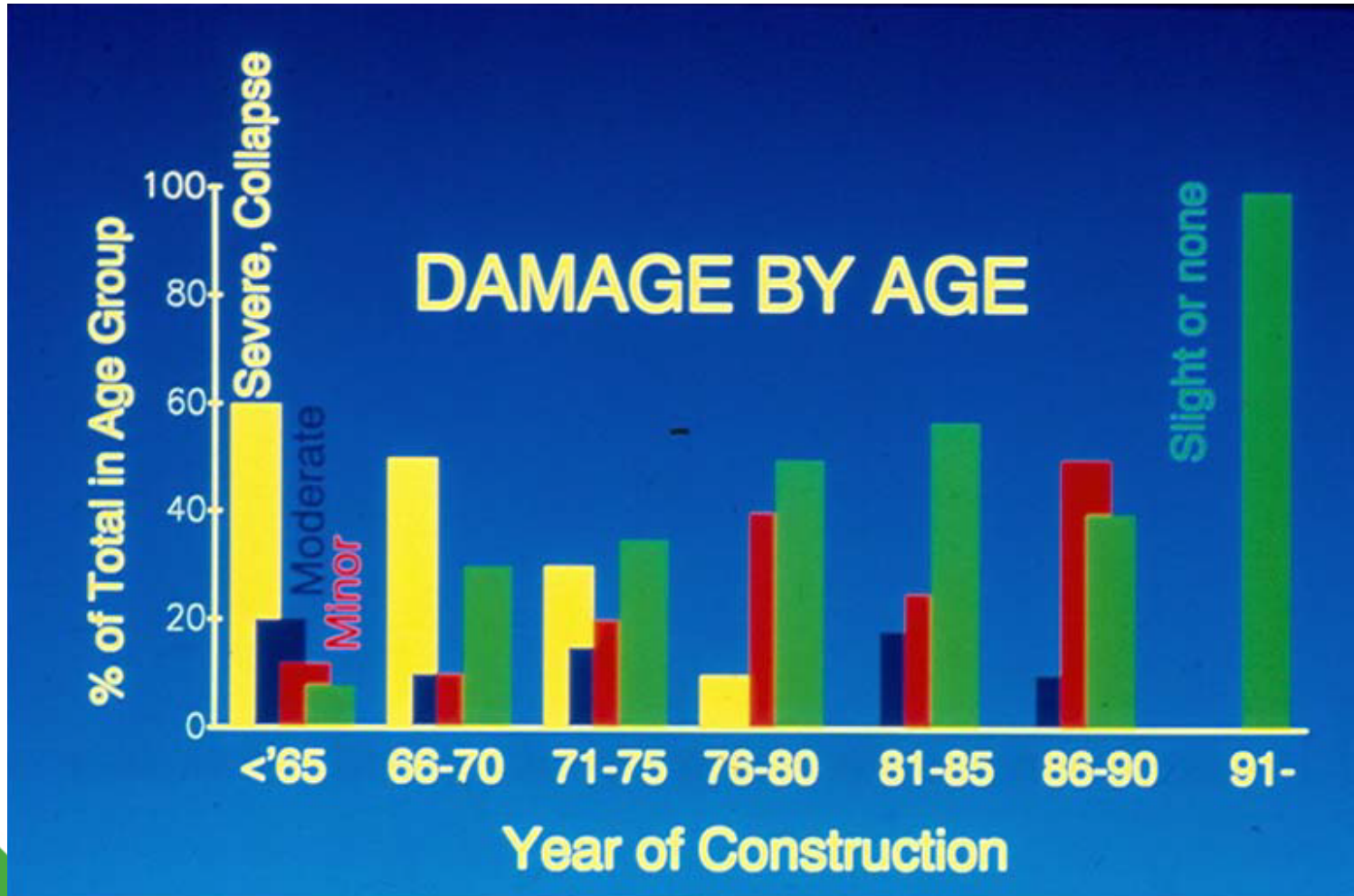
S. K. Ghosh

S. K. Ghosh Associates LLC

Expected Seismic Performance of Code-Designed Buildings



Damage Data Compiled by DPRI after 1995 Kobe Earthquake



Seismic Design Provisions in Japan



Structural damage should be prevented in events that may occur more than once in the lifetime of the building for the protection of properties; i.e., damage must be prevented in structural frames, members, interior and exterior finishing materials. A return period for such events may be 30 to 50 years.

Seismic Design Provisions in Japan



For the protection of human life, no story of the building should collapse under extraordinary loading conditions. The maximum possible earthquake motion level is determined on the basis of historical earthquake data, recorded strong ground motions, seismic and geologic tectonic structures and identified activities of active faults. A return period of several hundred years is assumed in defining the design earthquake motions.

Functional Recovery



Design and construction intended to result in a building

for which post-earthquake structural and nonstructural capacity are maintained or can be restored

to support the basic intended functions of the building's pre-earthquake use and occupancy within a maximum acceptable time that might differ for various uses or occupancies

Affordable Housing Crisis

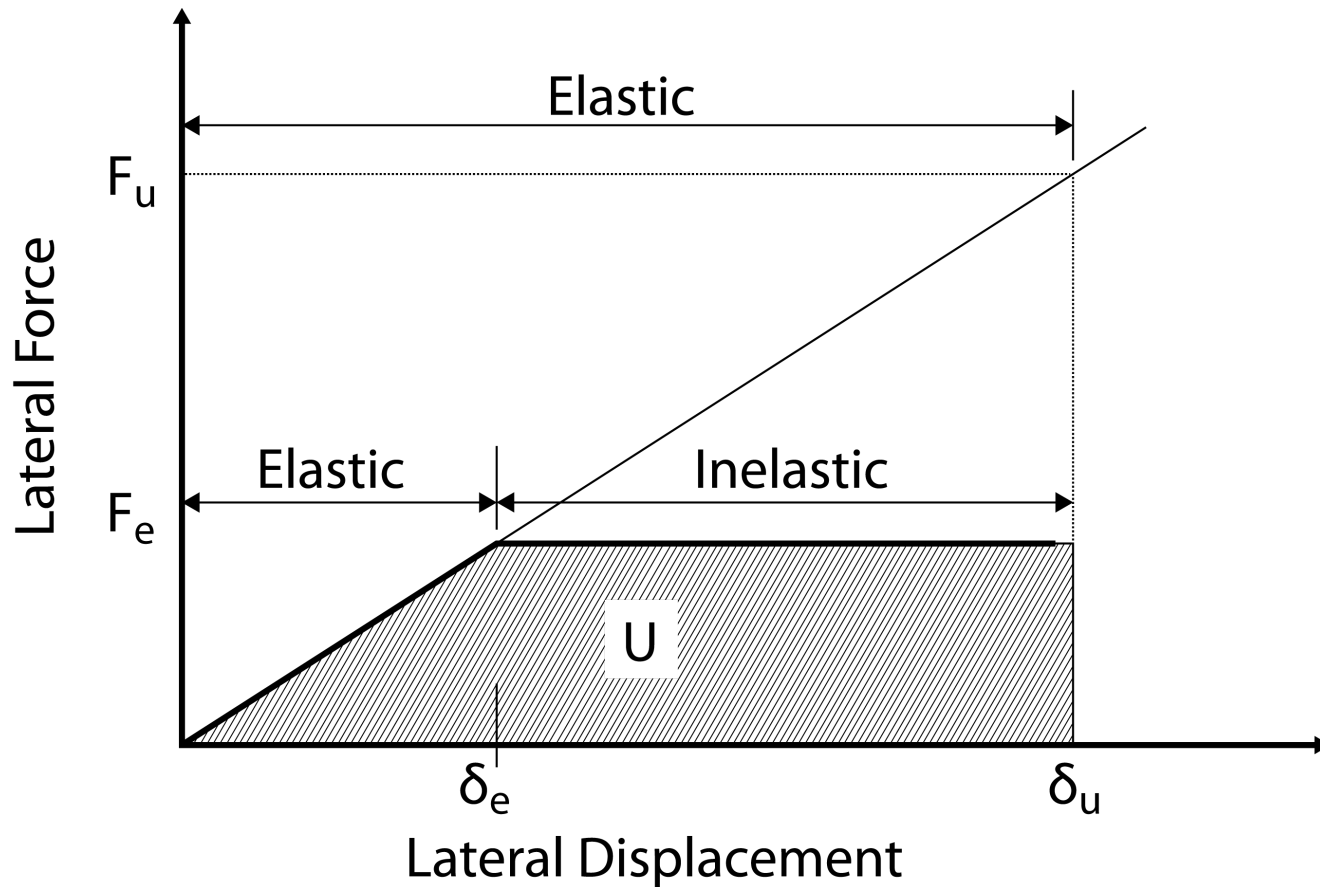


Los Angeles County's homeless count rose 12% to 58,936, a reversal from last year's 4% drop. ... higher rents and a tight housing market are forcing more into homelessness.

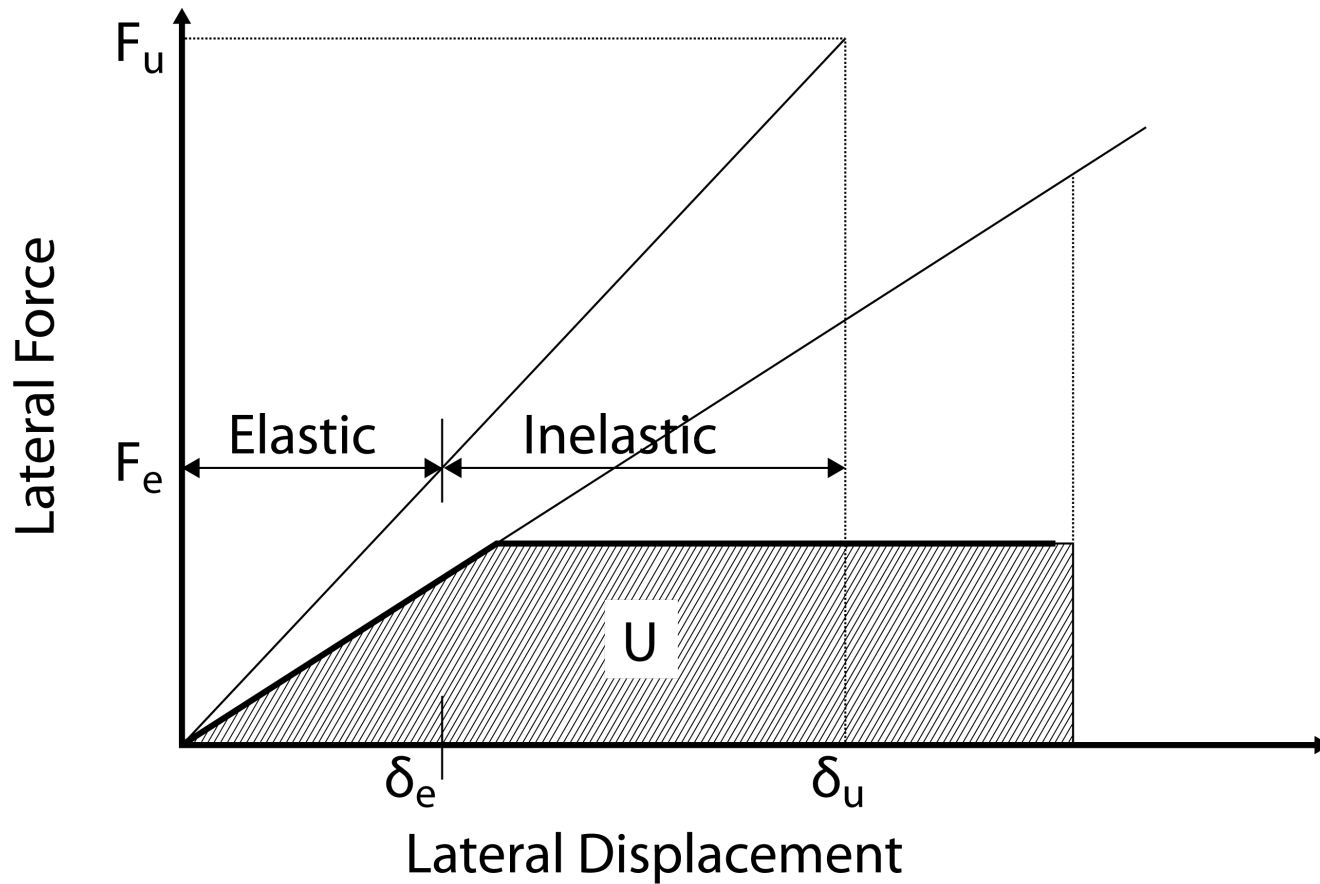
The city of Los Angeles alone saw a 16% increase to 36,300 after a 6% decrease in last year's count.

... county homeless numbers were actually better than those being reported statewide. It's up 35% statewide compared to 7% for Los Angeles County over two years, ...

Idealized Force-Displacement Response



Idealized Force-Displacement Response



Mark Fintel. PCI Journal, May-June 1995



Performance of Buildings With Shear Walls in Earthquakes of the Last Thirty Years

During the earthquakes of the last three decades, buildings containing shear walls have exhibited very satisfactory earthquake performance. In most cases, the shear walls were reinforced in the traditional manner for gravity and overturning without consideration given to special details for ductility, as required in recent United States building codes.

6.

Performance of Reinforced Concrete Buildings During the 1985 Chile Earthquake: Implications for the Design of Structural Walls

Sharon L. Wood, M.EERI

Earthquake Spectra, Vol. 7, No. 4, 1991



The performance of reinforced concrete buildings during the 1985 Chile earthquake demonstrated that structural wall systems provide a reasonable alternative for earthquake-resistant construction. Less than 10% of the buildings in Vina del Mar experienced moderate to severe structural damage during an earthquake in which the strong shaking lasted more than 60 seconds and the peak ground acceleration exceeded 0.35g. A substantial amount of wall area was used in the buildings, between 2 and 4% of the floor area in the longitudinal and transverse directions.

The buildings in Vina del Mar and the associated studies of generalized wall response have demonstrated that building stiffness can eliminate the need for toughness in structural walls.

Thank you!



International Code Council

Contact Information

