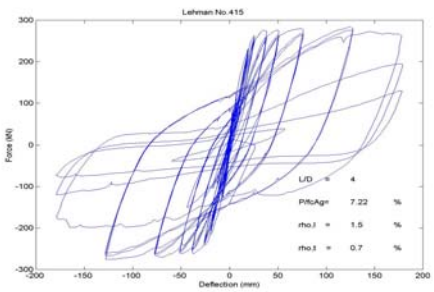
Structural Performance Database

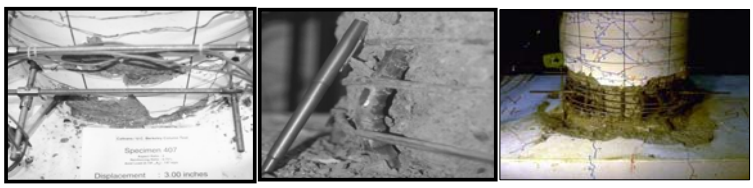
The development of performance models depends on the availability of performance data

PEER is contributing to the solution through…

Data Collection (~500 columns)



DAMAGE MEASURE	SAFETY IMPLICATION	REPAIR MEASURES	LOSS OF FUNCTION
Flexural Cracks	None	None	None
Steel Yielding			
Significant Residual Cracks		Epoxy Injection/ Patching	
Onset of Spalling			Possible Short Term
Significant Spalling	Marginal		
Onset of Bar Buckling	Low to High	Partial Replacement	Moderate Term
Spiral/Hoop Fracture			
Longitudinal Bar Fracture			
Loss of Axial Load	Critical	Fully Replace	Long Term



Dissemination

(http://nisee.berkeley.edu/spd)

PEER SPD Structural Performance Database

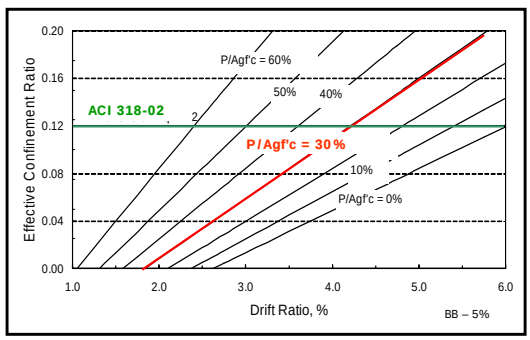
Top Google match for: "Structural Performance Database"

Model Development

$$\frac{\Delta_{spall\_calc}}{L}(\%) \cong 1.6\left(1-\frac{P}{A_g f'_c}\right)\left(1+\frac{L}{10D}\right)$$

$$\frac{\Delta_{bb\_calc}}{L}(\%) = 3.25\left(1+k_e\rho_{eff}\frac{d_b}{D}\right)\left(1-\frac{P}{A_g f'_c}\right)\left(1+\frac{L}{10D}\right)$$

where ke = 45 for rectangular columns
= 150 for spiral-reinforced columns



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Poster by M. Eberhard (UW) and M. Berry (Montana State)