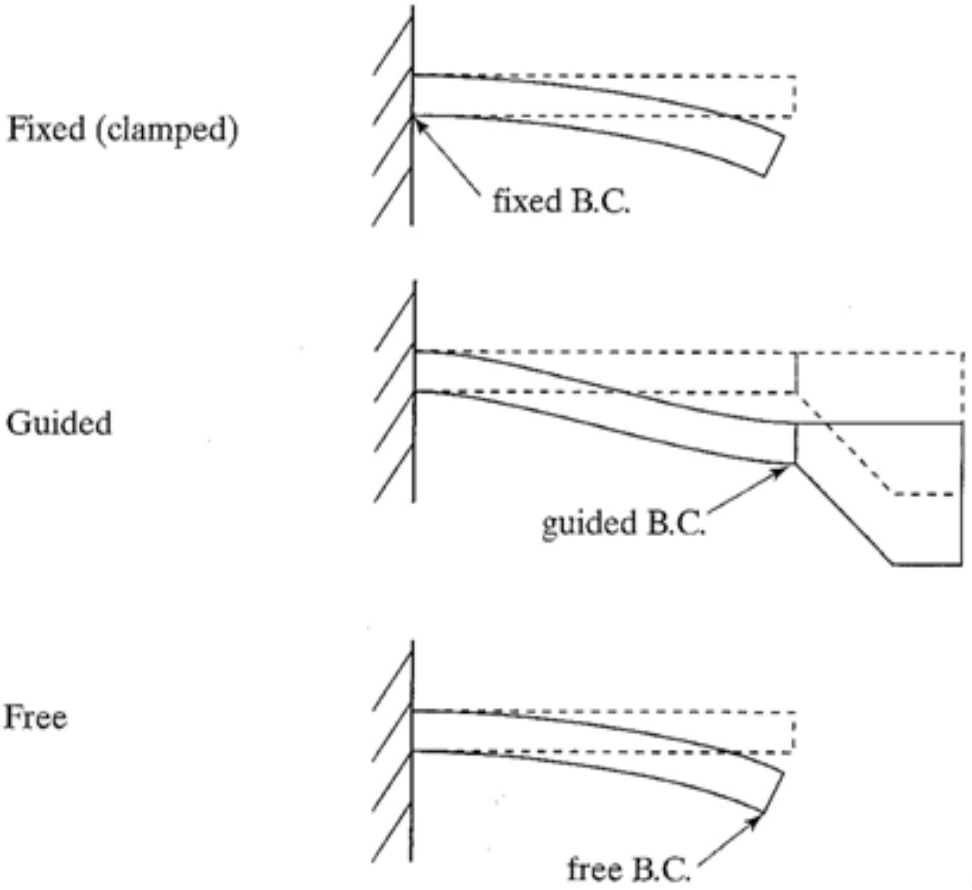
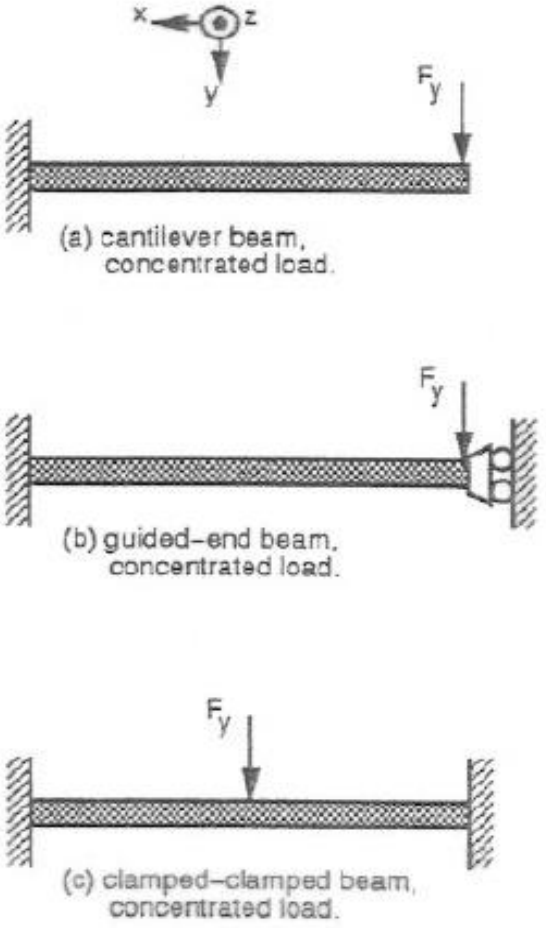
Spring Stiffness and Beam Combinations

- Boundary Conditions:



Spring Stiffness and Beam Combinations

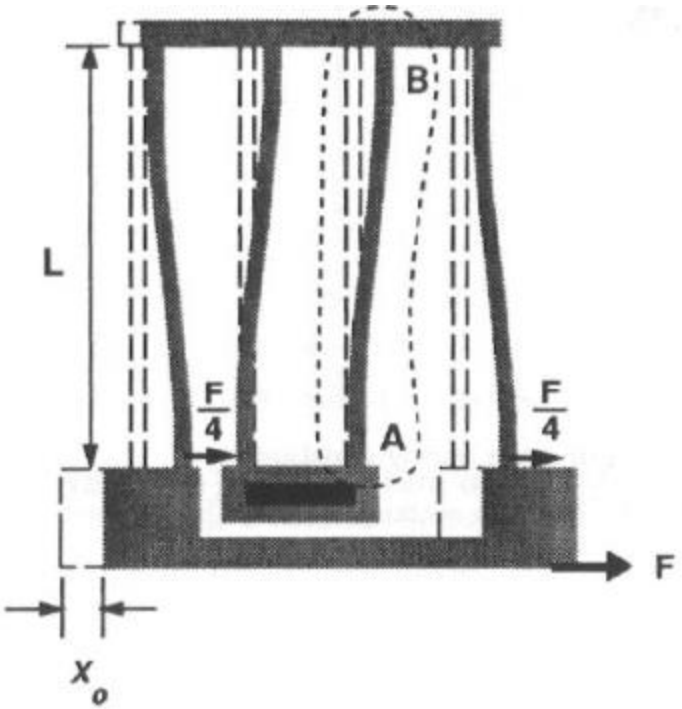
- Cantilever and beam combinations (small deflection is assumed)



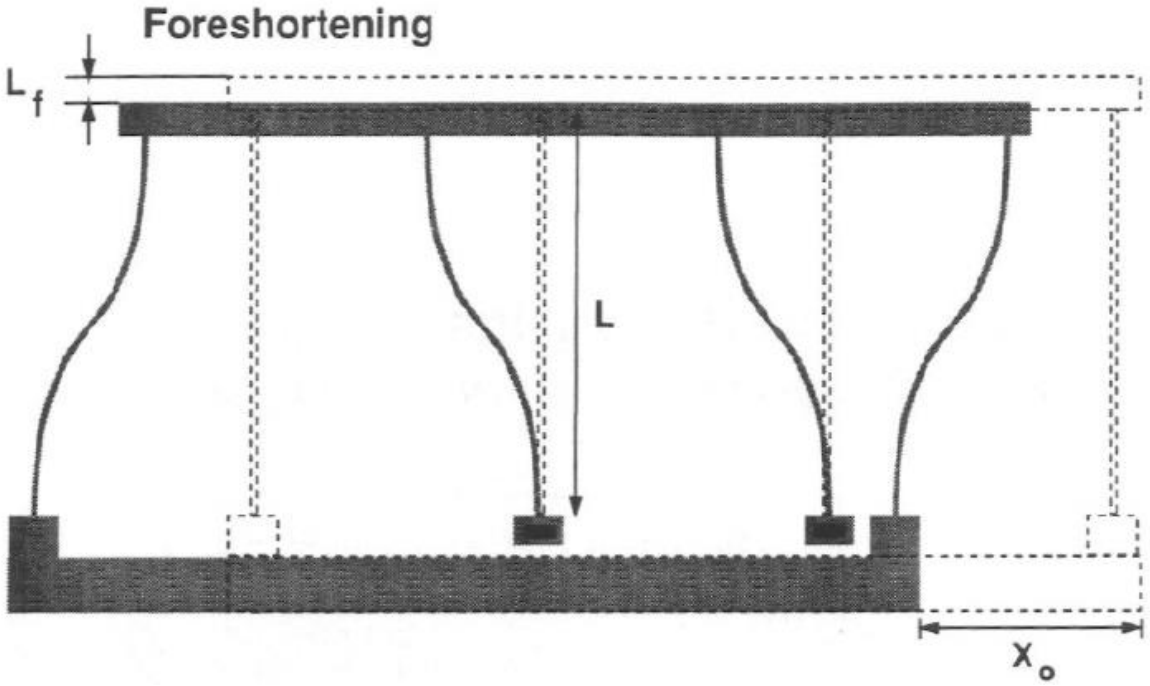
cantilever	guided-end	fixed-fixed
$x = \frac{F_x L}{Ehw}$	$x = \frac{F_x L}{Ehw}$	$x = \frac{F_x L}{4Ehw}$
$y = 4\frac{F_y}{Eh}\frac{L^3}{w^3}$	$y = \frac{F_y}{Eh}\frac{L^3}{w^3}$	$y = \frac{1}{16}\frac{F_y}{Eh}\frac{L^3}{w^3}$
$z = 4\frac{F_z}{Ew}\frac{L^3}{h^3}$	$z = \frac{F_z}{Ew}\frac{L^3}{h^3}$	$z = \frac{1}{16}\frac{F_z}{Ew}\frac{L^3}{h^3}$

Spring Stiffness and Beam Combinations

- Folded Beam Spring



Under Small Deflections



Under Large Deflections

Highly linear spring