Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Assignment 4**

Consider building model on pages 7-9 of the lecture notes. Model the columns as massless bending beams, floors as massless rigid bodies, and assume that the floors move vertically in the plane. Find the vertical displacement  of the loading point as function of the weight on the loading tray and thereby the effective stiffness (spring coefficient)  of the structure defined by . Use the displacement-force relationship for a typical column shown to deduce the displacement of the second floor.

*z*

*h*

*x*

*P*