

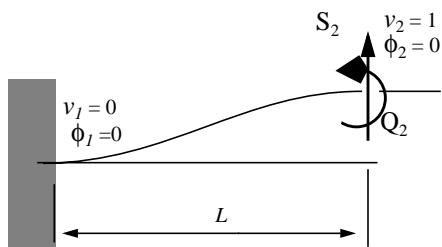
Class Exercise #23 1.050 Solid Mechanics

Fall 2004 1.050 Solid Mechanics

In problem 11.1, you showed that the end force and end moment (S_2 and Q_2 in the figure at the right - a different notation) required for a unit displacement at the end, $v_2 = 1$, and zero slope, $\phi_2 = 0$, were

$$S_2 = \frac{12EI}{L^3}$$

$$Q_2 = -\frac{6EI}{L^2}$$



1) Find the reactions at the wall. Let them be S_I and Q_I where the force is positive up and the moment positive ccw.

2) Fill in the third column of the stiffness matrix.

$$\begin{bmatrix} S_I \\ Q_I \\ S_2 \\ Q_2 \end{bmatrix} = \begin{bmatrix} & & & \\ & & & \\ & & & \\ & & & \end{bmatrix} \begin{bmatrix} v_I \\ \phi_I \\ v_2 \\ \phi_2 \end{bmatrix}$$