civil problem

Amarjeet singh

September 22, 2015

$$NumberOfStoreys = 4 \tag{1}$$

$$StiffnessMatrix = \begin{bmatrix} 1800 & -800 & 0 & 0 \\ -800 & 1400 & -600 & 0 \\ 0 & -600 & 1200 & -600 \\ 0 & 0 & -600 & 600 \end{bmatrix} \tag{2}$$

$$Mass = \begin{bmatrix} 8 & 0 & 0 & 0 \\ 0 & 8 & 0 & 0 \\ 0 & 0 & 4 & 0 \\ 0 & 0 & 0 & 4 \end{bmatrix} \tag{3}$$

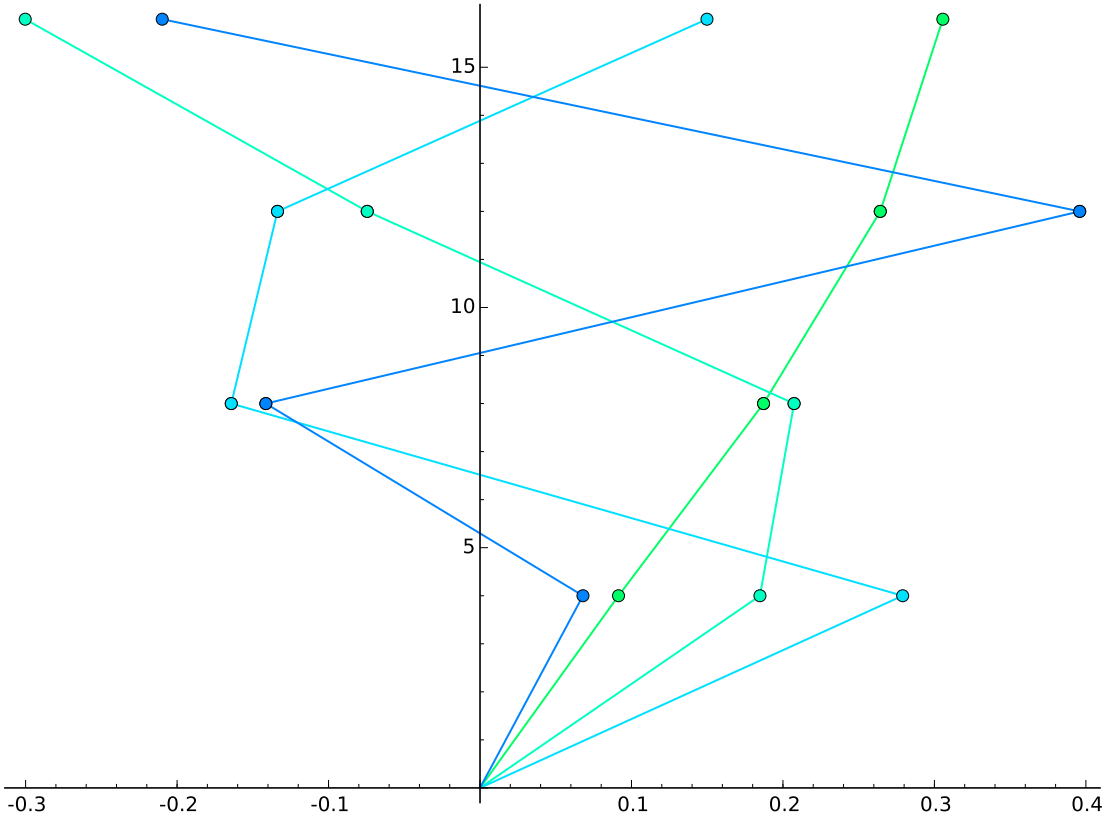
$$OmegaSquare = \begin{bmatrix} 20.2828 & 112.804 & 283.853 & 433.060 \end{bmatrix} \tag{4}$$

$$TimePeriod = \begin{bmatrix} 1.395 & 0.0000 & 0.0000 & 0.0000 \\ 0.0000 & 0.5916 & 0.0000 & 0.0000 \\ 0.0000 & 0.0000 & 0.3729 & 0.0000 \\ 0.0000 & 0.0000 & 0.0000 & 0.3019 \end{bmatrix} \tag{5}$$

$$Frequency = [4.504, 10.62, 16.85, 20.81] \tag{6}$$

$$vector = \begin{bmatrix} 0.0914411013787156 & 0.184807216246257 & 0.279044742000588 & 0.0679621200653882 \\ 0.187195694728417 & 0.207346959995166 & -0.164226700033078 & -0.141402266785769 \\ 0.264243869632717 & -0.0744599538481001 & -0.133705012147917 & 0.395921535611530 \\ 0.305561403107646 & -0.300271172910561 & 0.149833960244888 & -0.209807616656631 \end{bmatrix} \tag{7}$$

$$LevelFloor = \begin{bmatrix} 4.000 & 8.000 & 12.00 & 16.00 \end{bmatrix} \tag{8}$$



$$ModalParticipationFactor = \begin{bmatrix} 4.508 & 1.638 & 0.9830 & 0.1569 \end{bmatrix} \tag{9}$$

$$ModalMass = \begin{bmatrix} 20.32 & 2.684 & 0.9664 & 0.02463 \end{bmatrix} \tag{10}$$

$$ModalContribution = \begin{bmatrix} 84.69 & 11.18 & 4.027 & 0.1026 \end{bmatrix} \tag{11}$$

$$SaByG = \begin{bmatrix} 0.0000 & 0.7168 & 0.0000 & 0.0000 \\ 0.0000 & 1.690 & 0.0000 & 0.0000 \\ 0.0000 & 2.500 & 0.0000 & 0.0000 \\ 0.0000 & 2.500 & 0.0000 & 0.0000 \end{bmatrix} \tag{12}$$

$$AH = \begin{bmatrix} 0.0000 & 0.01720 & 0.0000 & 0.0000 \\ 0.0000 & 0.04057 & 0.0000 & 0.0000 \\ 0.0000 & 0.06000 & 0.0000 & 0.0000 \\ 0.0000 & 0.06000 & 0.0000 & 0.0000 \end{bmatrix} \tag{13}$$

$$DesignLateralforce = \begin{bmatrix} 0.5565 & 0.9640 & 1.292 & 0.05022 \\ 1.139 & 1.082 & -0.7602 & -0.1045 \\ 0.8042 & -0.1942 & -0.3095 & 0.1463 \\ 0.9299 & -0.7831 & 0.3468 & -0.07752 \end{bmatrix} \tag{14}$$

$$PeakShearForce = \begin{bmatrix} 3.430 & 1.068 & 0.5688 & 0.01450 \\ 2.873 & 0.1042 & -0.7229 & -0.03573 \\ 1.734 & -0.9773 & 0.03733 & 0.06877 \\ 0.9299 & -0.7831 & 0.3468 & -0.07752 \end{bmatrix} \tag{15}$$

ABS-:

$$StoreyShearForce = \begin{bmatrix} 5.082 \\ 3.736 \\ 2.818 \\ 2.137 \end{bmatrix} \tag{16}$$

SRSS -:

$$StoreyShearForce = \begin{bmatrix} 3.637 \\ 2.965 \\ 1.992 \\ 1.267 \end{bmatrix} \tag{17}$$

Complete Quadratic combination -:

$$LateralForce = (1.370,\ 0.4258,\ 0.1860,\ 0.01156) \tag{18}$$

Maximum Absolute Response -:

$$Force = (0.9445,\ 0.2398,\ 0.1744,\ 0.01156) \tag{19}$$