Dynamic of Structure: Mode and Time Period

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

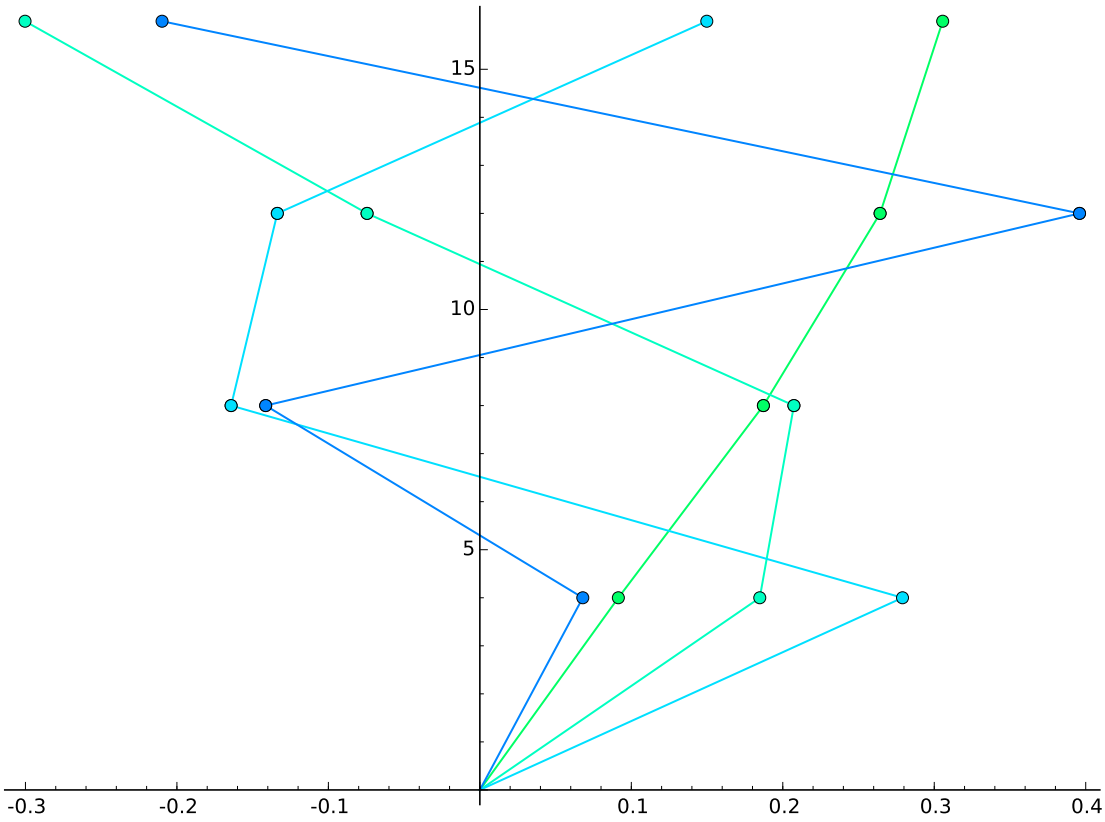
$$StiffnessMatrix = \begin{bmatrix} 1800 & -800 & 0 & 0 \\ -800 & 1400 & -600 & 0 \\ 0 & -600 & 1200 & -600 \\ 0 & 0 & -600 & 600 \end{bmatrix} \tag{2}$$

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

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

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

$$Frequency = (4.504,\ 10.62,\ 16.85,\ 20.81) \tag{6}$$



$$LevelFloor = \begin{bmatrix} 4.000 & 8.000 & 12.00 & 16.00 \end{bmatrix} \tag{7}$$

$$ModalParticipationFactor = \begin{bmatrix} 4.508 & 1.638 & 0.9830 & 0.1569 \end{bmatrix} \tag{8}$$

$$ModalMass = \begin{bmatrix} 20.32 & 2.684 & 0.9664 & 0.02463 \end{bmatrix} \tag{9}$$

$$ModalContribution = \begin{bmatrix} 84.69 & 11.18 & 4.027 & 0.1026 \end{bmatrix} \tag{10}$$

$$SaByG = \begin{bmatrix} 0.0000 & 0.7168 & 0.0000 & 0.0000 \\ 0.0000 & 1.690 & 0.0000 & 0.0000 \\ 0.0000 & 2.500 & 0.0000 & 0.0000 \\ 0.0000 & 2.500 & 0.0000 & 0.0000 \end{bmatrix} \tag{11}$$

$$AH = \begin{bmatrix} 0.0000 & 0.01720 & 0.0000 & 0.0000 \\ 0.0000 & 0.04057 & 0.0000 & 0.0000 \\ 0.0000 & 0.06000 & 0.0000 & 0.0000 \\ 0.0000 & 0.06000 & 0.0000 & 0.0000 \end{bmatrix} \tag{12}$$

$$DesignLateralforce = \begin{bmatrix} 0.5560 & 0.9630 & 1.290 & 0.05017 \\ 1.138 & 1.080 & -0.7594 & -0.1044 \\ 0.8033 & -0.1940 & -0.3091 & 0.1461 \\ 0.9290 & -0.7823 & 0.3464 & -0.07744 \end{bmatrix} \quad (13)$$

$$PeakShearForce = \begin{bmatrix} 3.427 & 1.067 & 0.5682 & 0.01448 \\ 2.870 & 0.1041 & -0.7221 & -0.03569 \\ 1.732 & -0.9763 & 0.03729 & 0.06870 \\ 0.9290 & -0.7823 & 0.3464 & -0.07744 \end{bmatrix} \quad (14)$$

ABS-:

$$StoreyShearForce = \begin{bmatrix} 5.076 \\ 3.732 \\ 2.815 \\ 2.135 \end{bmatrix} \quad (15)$$

SRSS -:

$$StoreyShearForce = \begin{bmatrix} 3.634 \\ 2.962 \\ 1.990 \\ 1.265 \end{bmatrix} \quad (16)$$

Complete Quadratic combination -:

$$LateralForce = (1.369,\ 0.4253,\ 0.1858,\ 0.01154) \quad (17)$$

Maximum Absolute Response -:

$$Force = (0.9435,\ 0.2395,\ 0.1743,\ 0.01154) \quad (18)$$