sDyna REPORT

This report has been automatically generated by sDyna software.

# Mass Matrix

|  |  |  |  |
| --- | --- | --- | --- |
|  | 227.56 | 0.0 | 0.0 |
| m = | 0.0 | 227.56 | 0.0 |
|  | 0.0 | 0.0 | 227.56 |

# Stiffness Matrix

|  |  |  |  |
| --- | --- | --- | --- |
|  | 198398.54 | -85910.51 | 0.0 |
| k = | -85910.51 | 171821.02 | -85910.51 |
|  | 0.0 | -85910.51 | 85910.51 |

# Damping Matrix

|  |  |  |  |
| --- | --- | --- | --- |
|  | 789.63 | -579.14 | 0.0 |
| c = | -579.14 | 1390.62 | -811.48 |
|  | 0.0 | -811.48 | 811.48 |

# Natural Frequencies and Periods

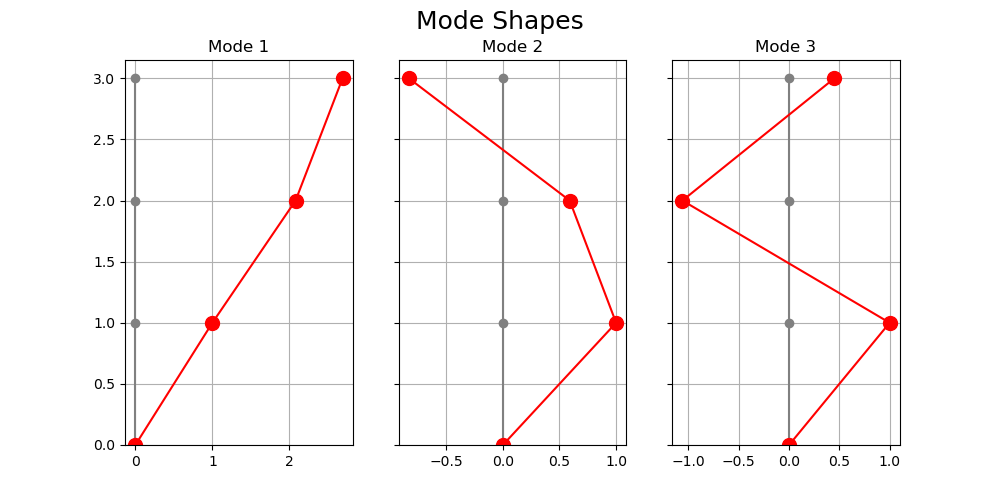
ω1 = 9.25 rad/sec ---------------> T1= 0.68 sec

ω2 = 25.45 rad/sec ---------------> T2= 0.25 sec

ω3 = 35.66 rad/sec ---------------> T3= 0.18 sec

# Modes' Amplitudes

|  |  |  |  |
| --- | --- | --- | --- |
| Mode 1 Amplitudes | φ11 = 1.0 | φ12 = 2.08 | φ13 = 2.69 |
| Mode 2 Amplitudes | φ21 = 1.0 | φ22 = 0.59 | φ23 = -0.83 |
| Mode 3 Amplitudes | φ31 = 1.0 | φ32 = -1.06 | φ33 = 0.45 |



# Generalized Mass Matrix

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2858.72 | 0.0 | 0.0 |
| M = | 0.0 | 463.54 | 0.0 |
|  | 0.0 | 0.0 | 529.33 |

# Generalized Stiffness Matrix

|  |  |  |  |
| --- | --- | --- | --- |
|  | 244660.84 | 0.0 | 0.0 |
| K = | 0.0 | 300158.78 | 0.0 |
|  | 0.0 | 0.0 | 672947.17 |

# Generalized Damping Matrix

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1187.95 | 0.0 | 0.0 |
| C = | 0.0 | 1944.11 | 0.0 |
|  | 0.0 | 0.0 | 4518.38 |

# Modal Participating Factors

Γx1 = 0.46

Γx2 = 0.37

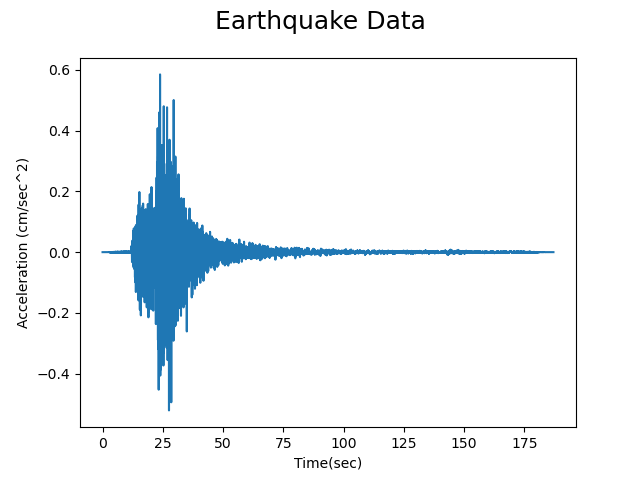
Γx3 = 0.17

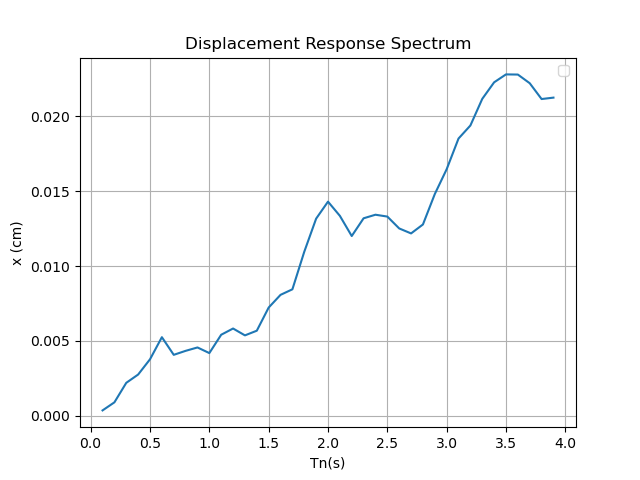
# Effective Participating Mass of Each Mode

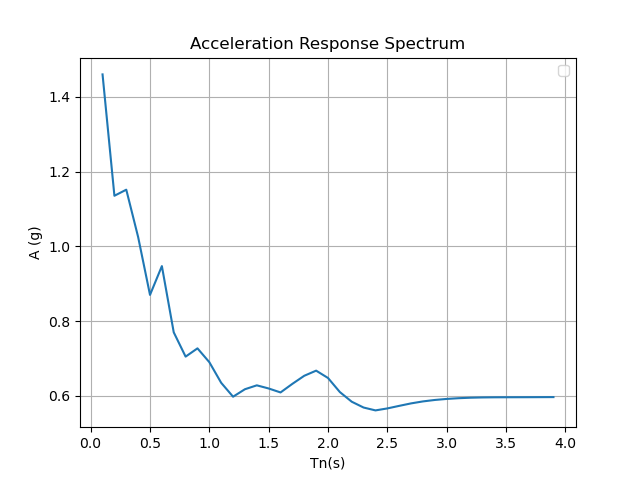
Mx1 = 603.08

Mx2 = 64.53

Mx3 = 14.88







# Psuedo Acceleration Respond Spectrum

Sae1 = 0.331

Sae2 = 0.598

Sae3 = 0.963

# Modes' Base Shear Forces

Vx1 = 1955.384

Vx2 = 378.782

Vx3 = 140.637

# Total Base Shear Force with SRSS method

VT = 1996.693