University of Asia Pacific

Project

Course Code: CE 418

Submitted To:

Mohammad Sabbir Rahman

Assistant Professor

Department of Civil Engineering

University of Asia Pacific

Submitted By:

Name: Lamia Ahmed Sadia

Reg No: **20105084**

Section: B

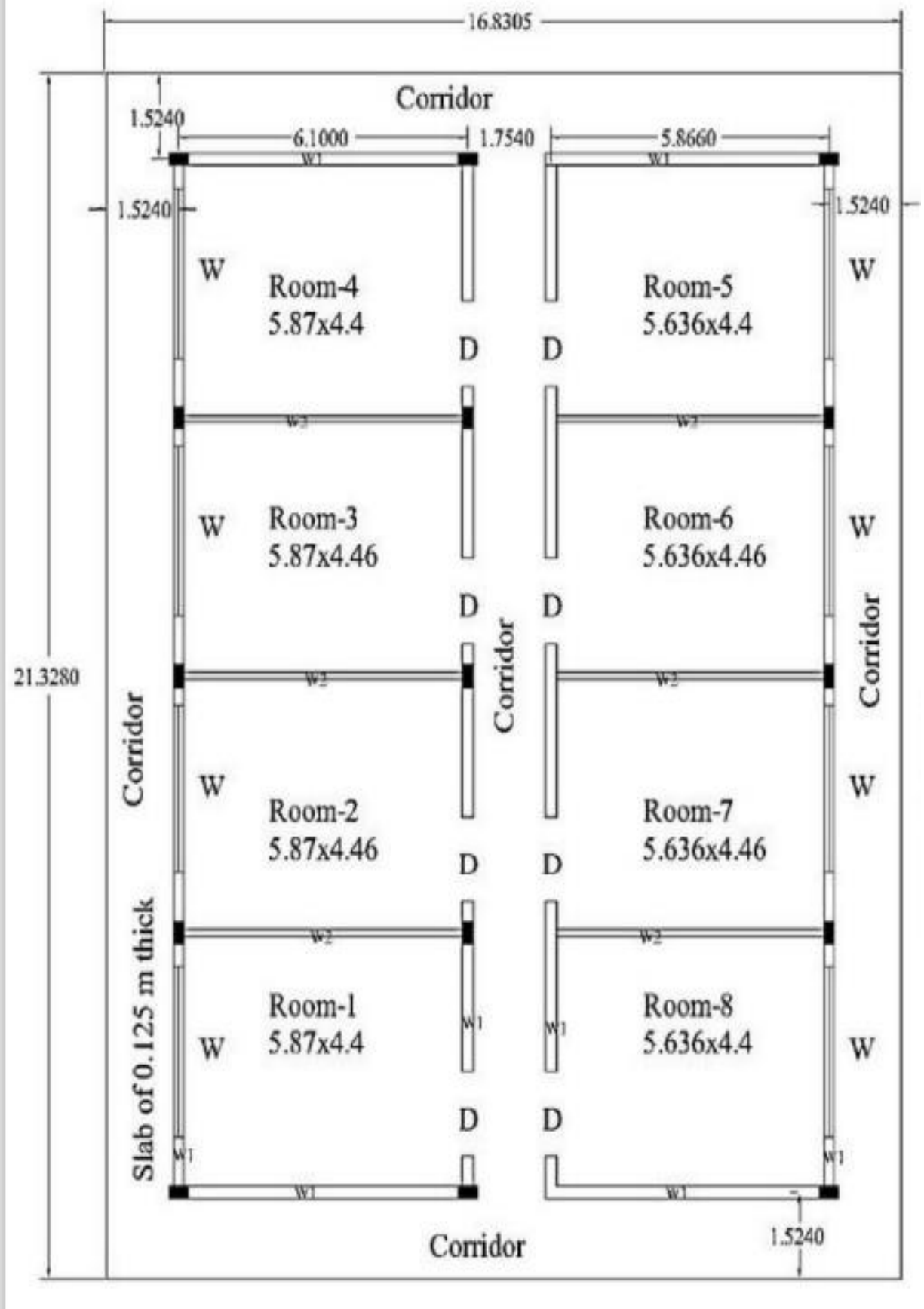


Fig:10 Story Building

District: Noakhali

Total Story: 10

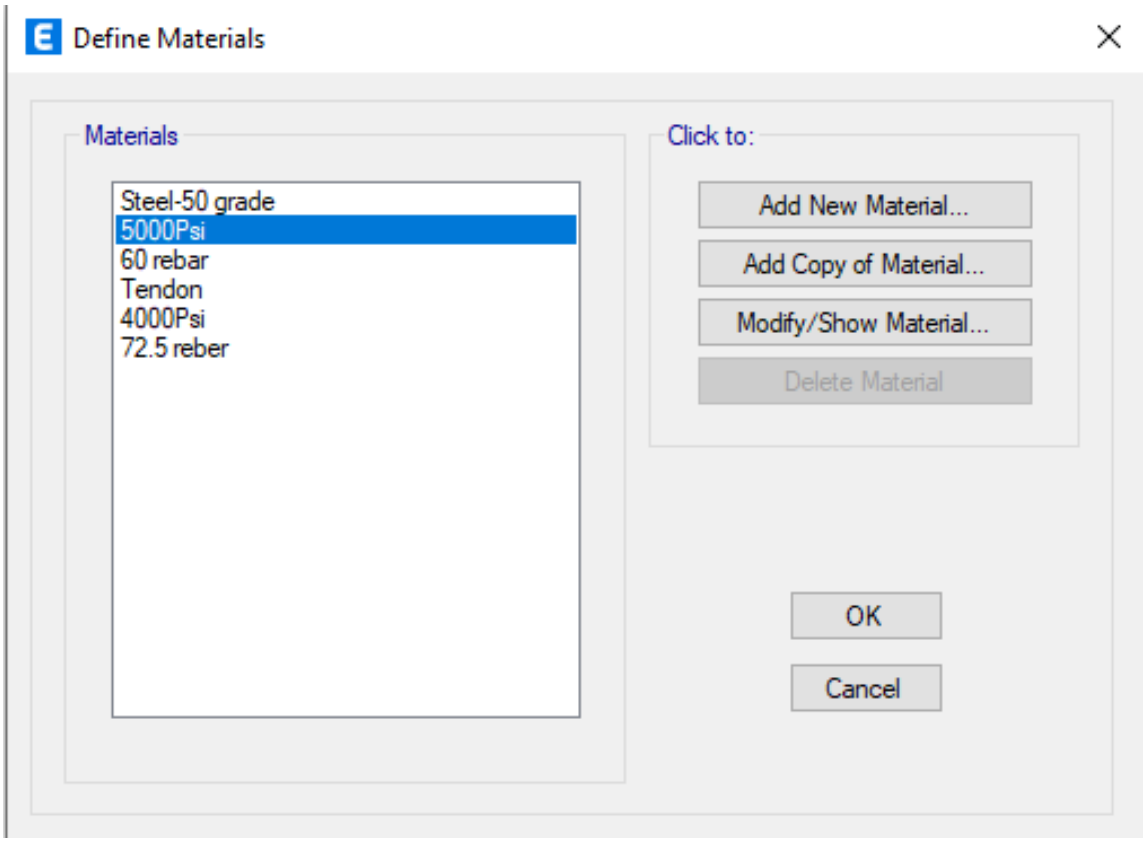
Building Type: Shopping Center

Soil Type: 2

Story height: 10ft

Base Height: 5ft

Material Property:



Material Property Data

General Data

Material Name: 5000Psi

Material Type: Concrete

Directional Symmetry Type: Isotropic

Material Display Color: Change...

Material Notes: Modify/Show Notes...

Material Weight and Mass

(•) Specify Weight Density ( ) Specify Mass Density

Weight per Unit Volume: 2.356E-08 kN/mm³

Mass per Unit Volume: 0 kN-s²/mm⁴

Mechanical Property Data

Modulus of Elasticity, E: 27.7894 kN/mm²

Poisson's Ratio, U: 0.2

Coefficient of Thermal Expansion, A: 0.0000055 1/F

Shear Modulus, G: 11.5789 kN/mm²

Design Property Data

Modify/Show Material Property Design Data...

Advanced Material Property Data

Nonlinear Material Data... Material Damping Properties...

Time Dependent Properties...

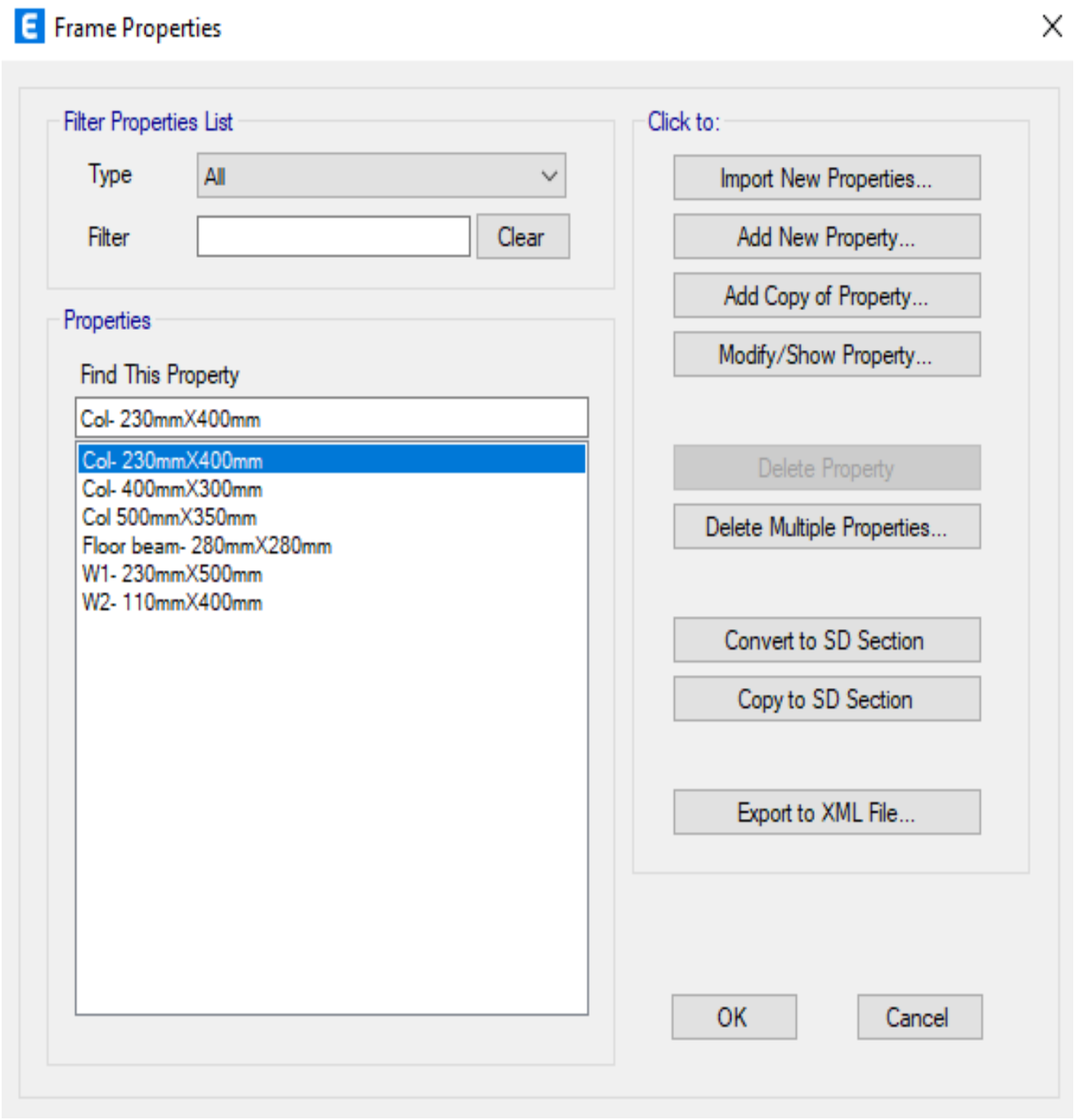
Modulus of Rupture for Cracked Deflections

(•) Program Default (Based on Concrete Slab Design Code)

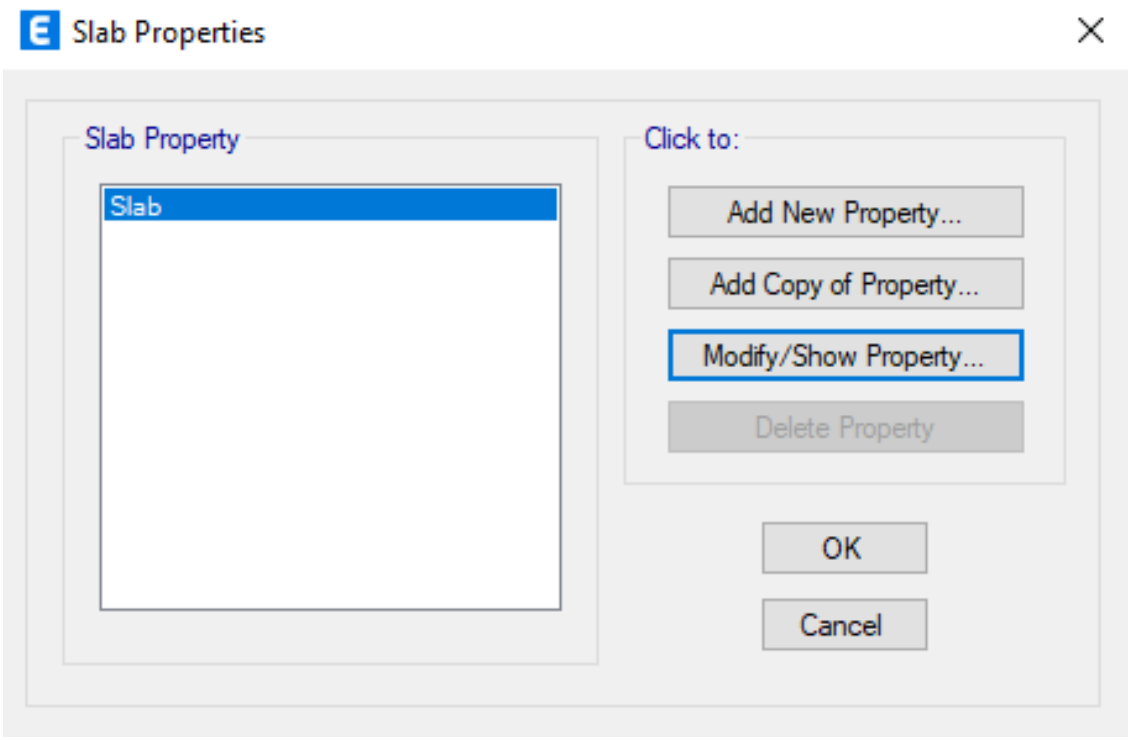
( ) User Specified

OK Cancel

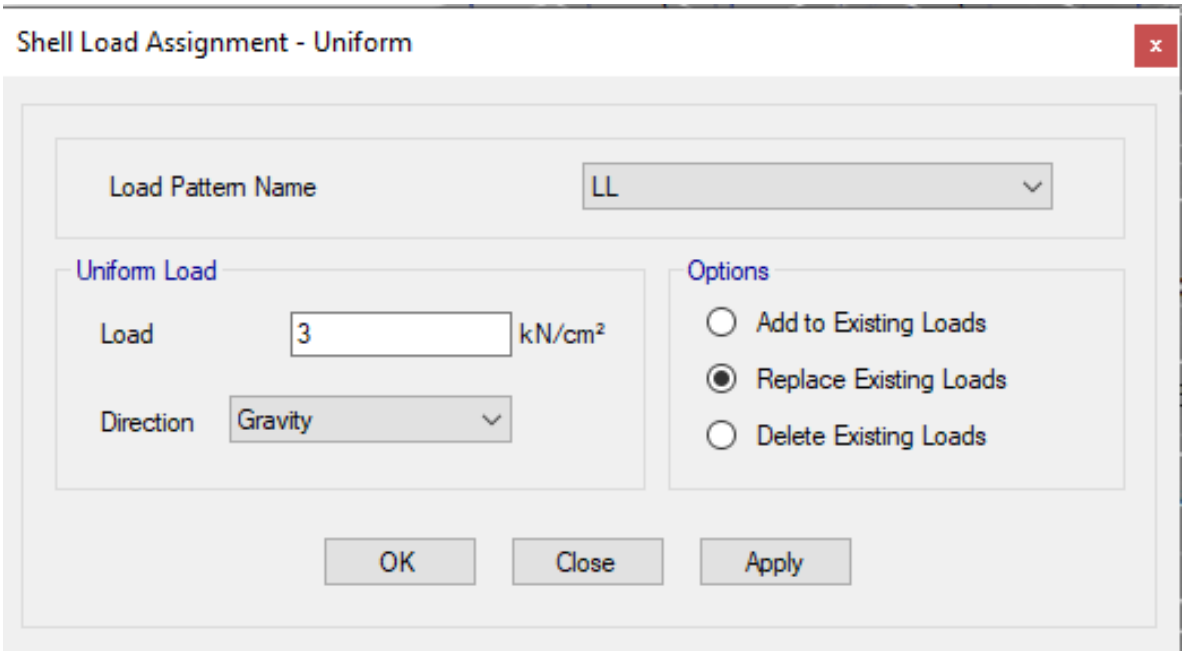
Frame Section:



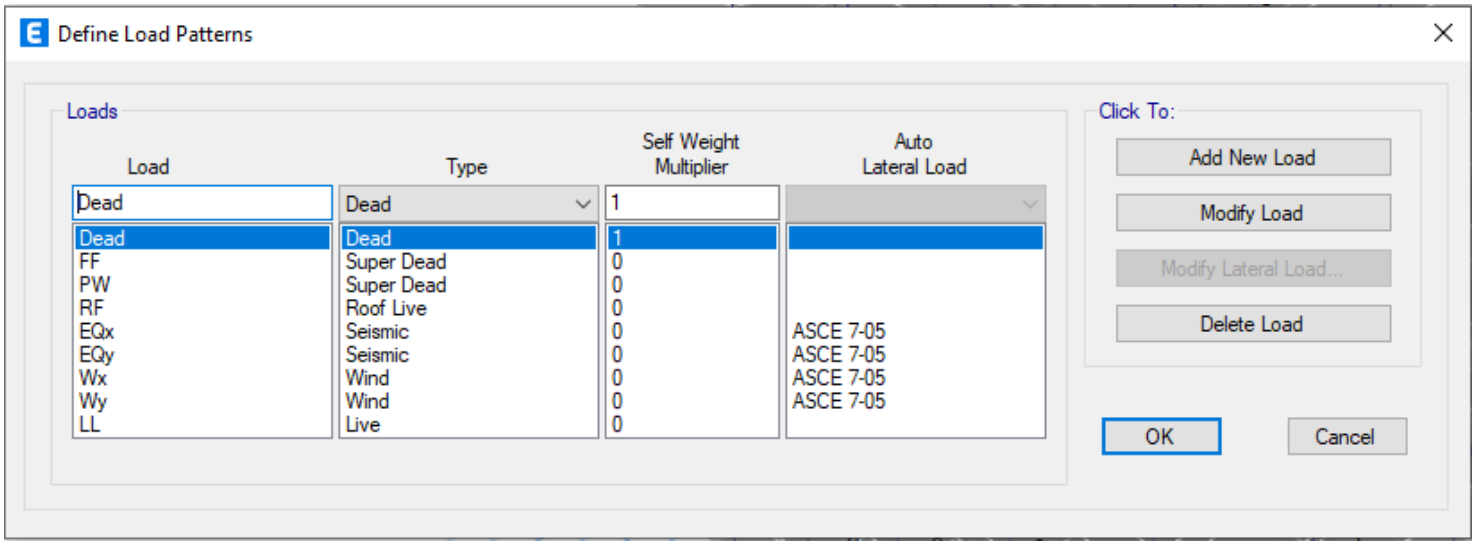
Slab Section:



Load:



Load Pattern:



Direction and Eccentricity:

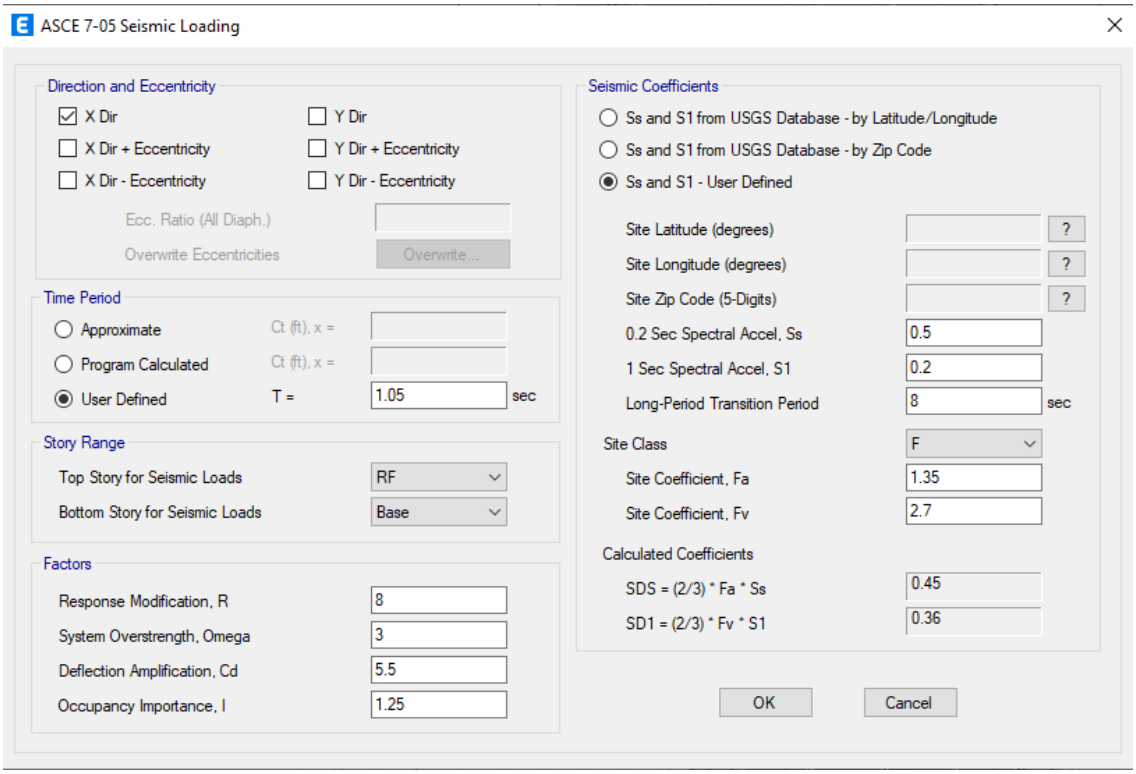


Fig: EQx

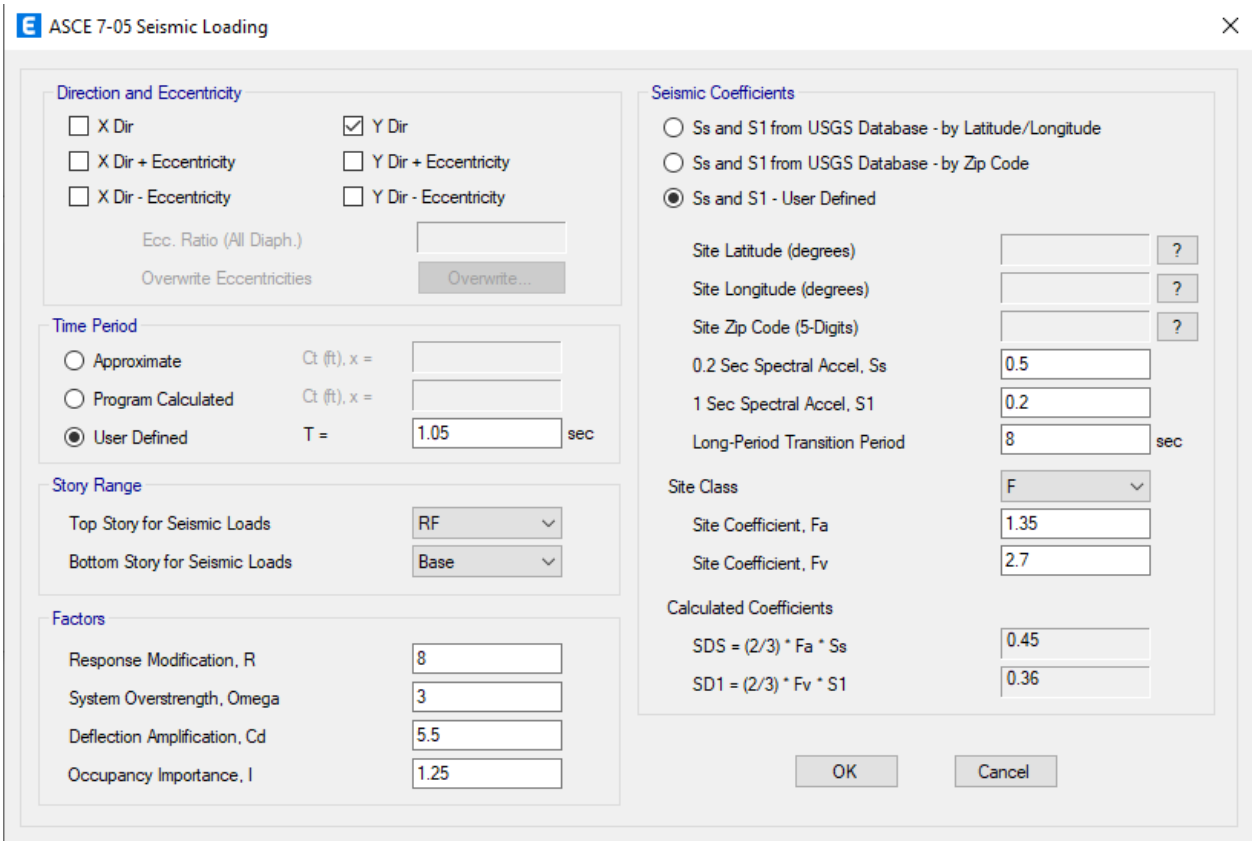


Fig:EQy

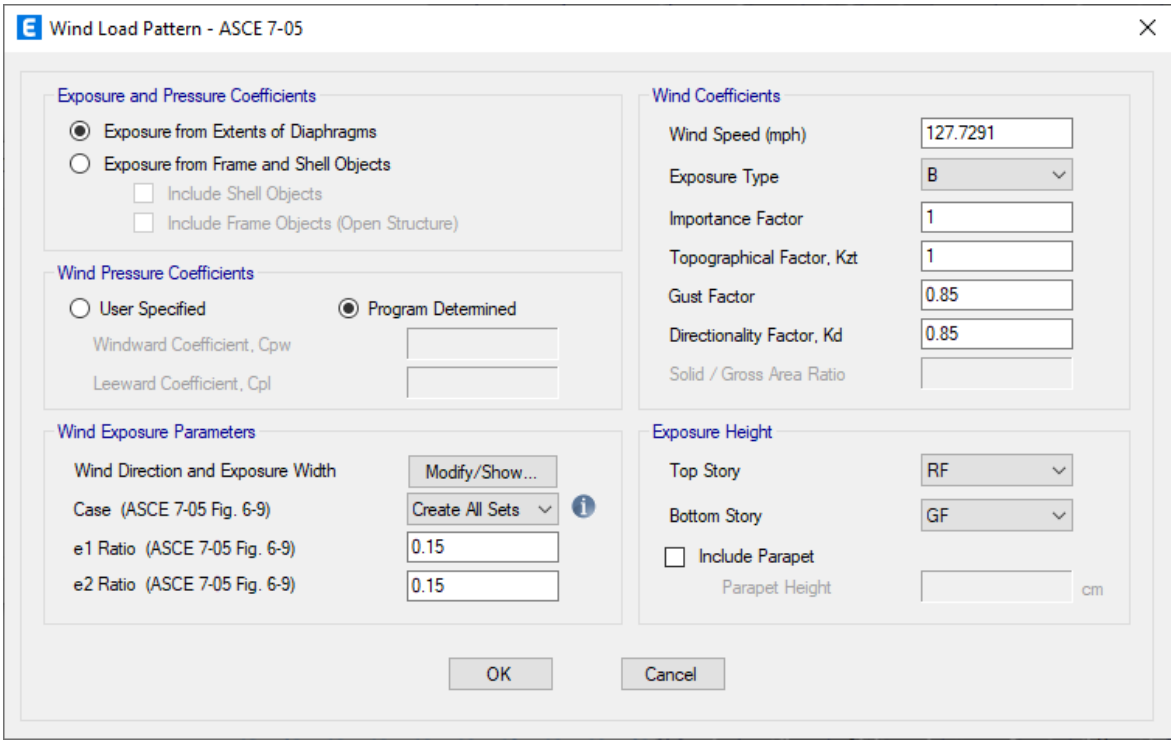
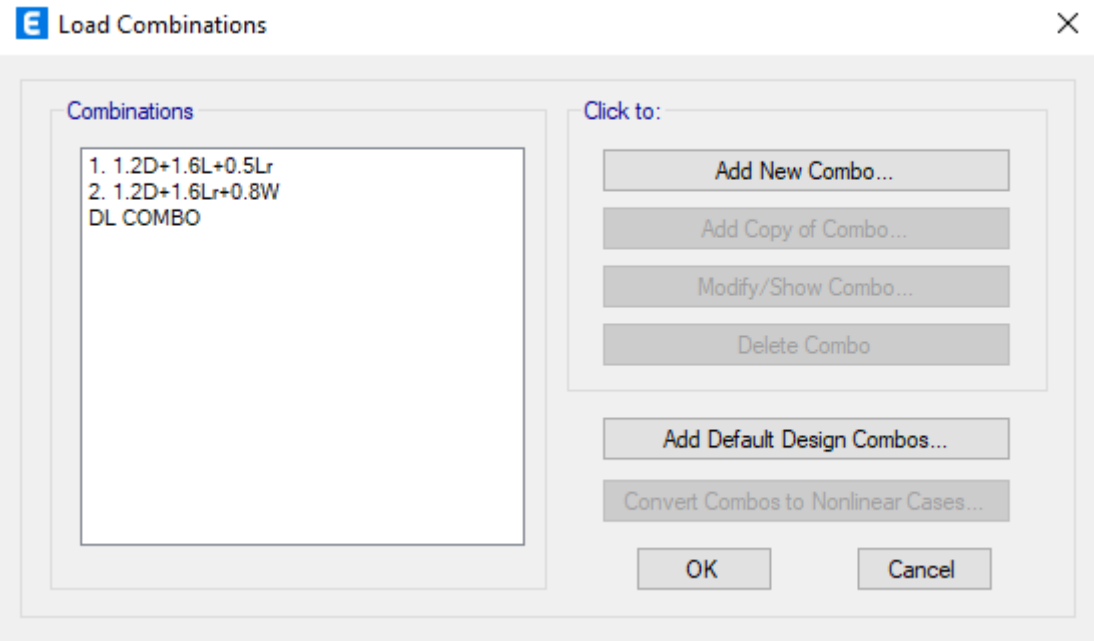
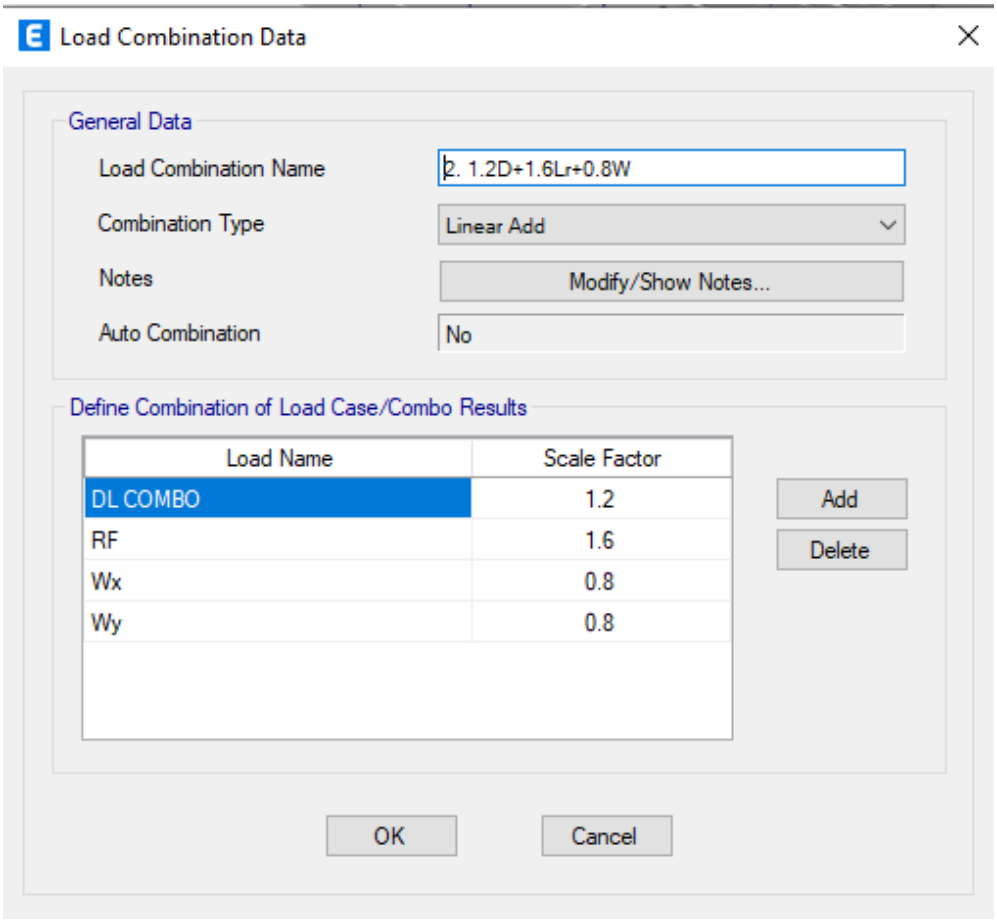


Fig:WX

Load Combinations:





Building Model:

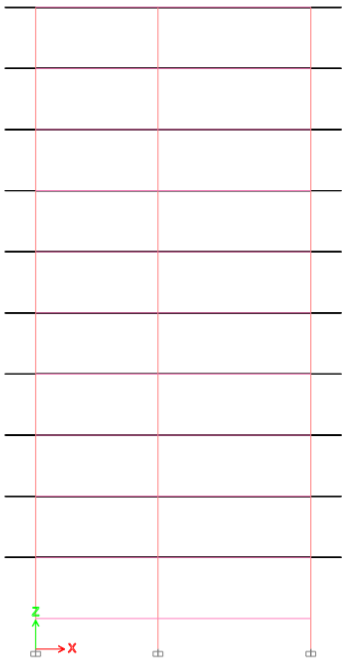


Fig: Elevation

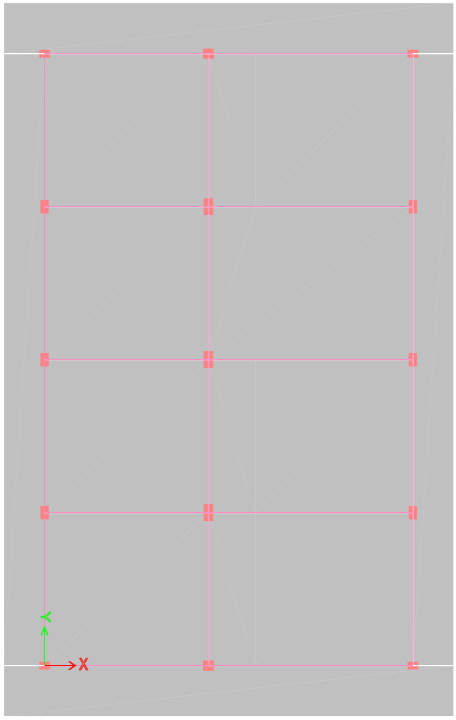


Fig: Plan View

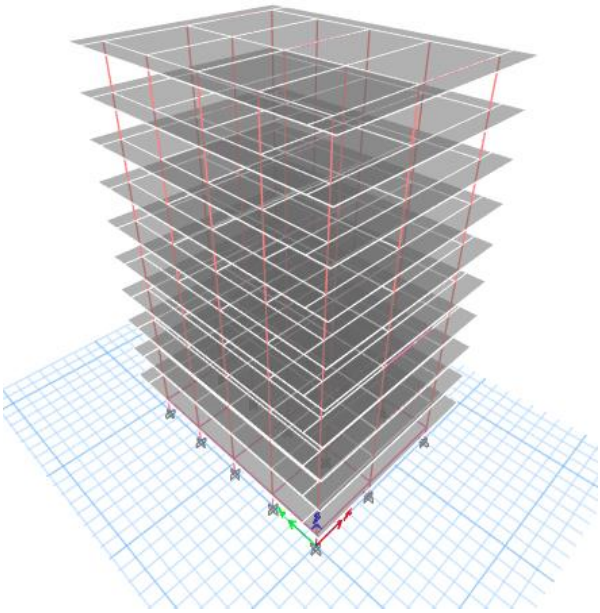
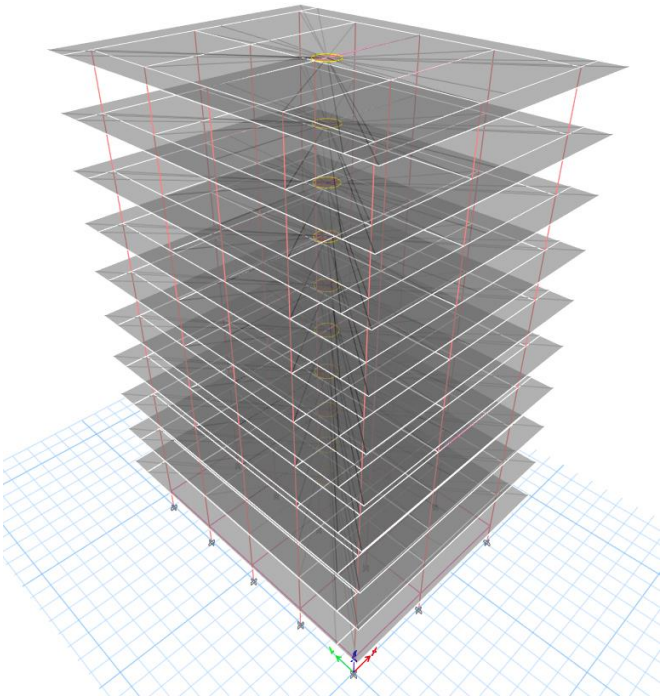
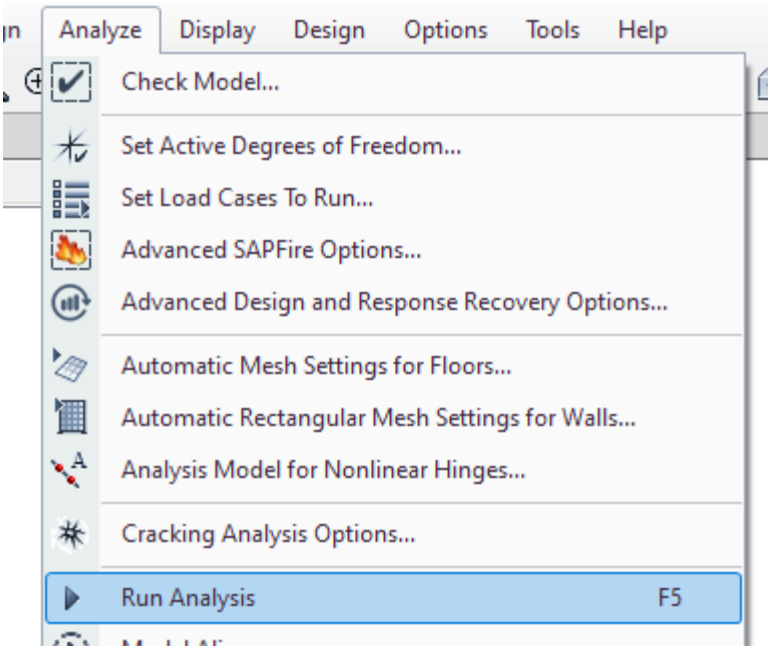


Fig: 3D View

Diaphragms:



Run Analysis and Design:



Result:

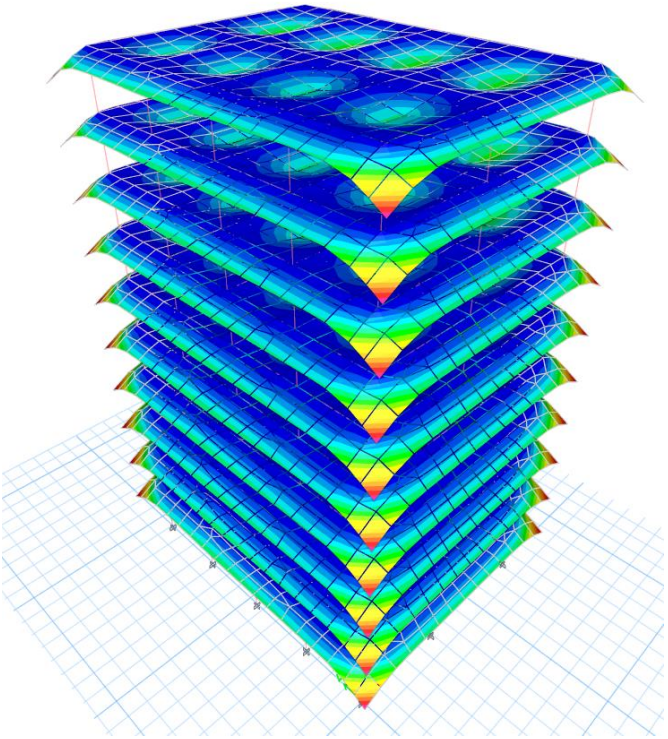


Fig: Deformed Shape

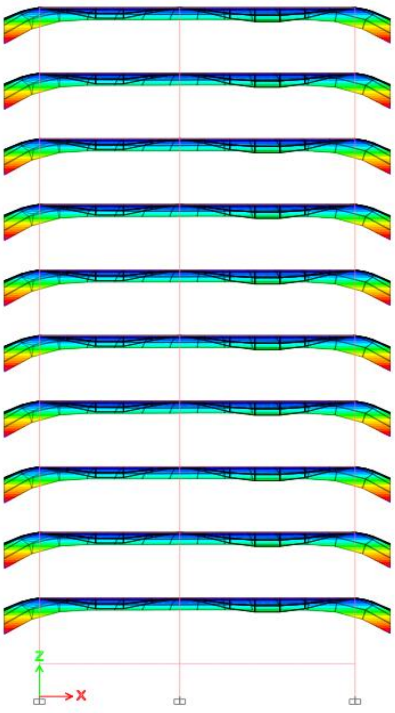
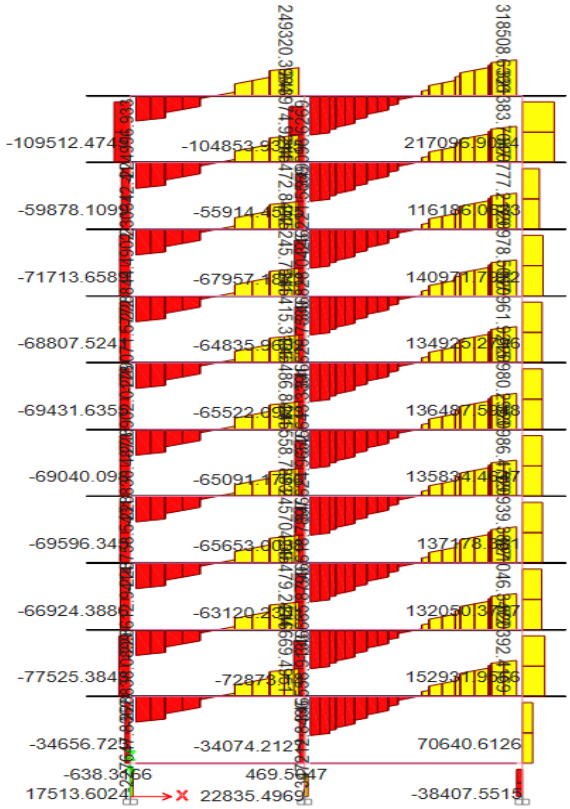


Fig: Elevation-01



:

Fig: Shear 2-2 Diagram

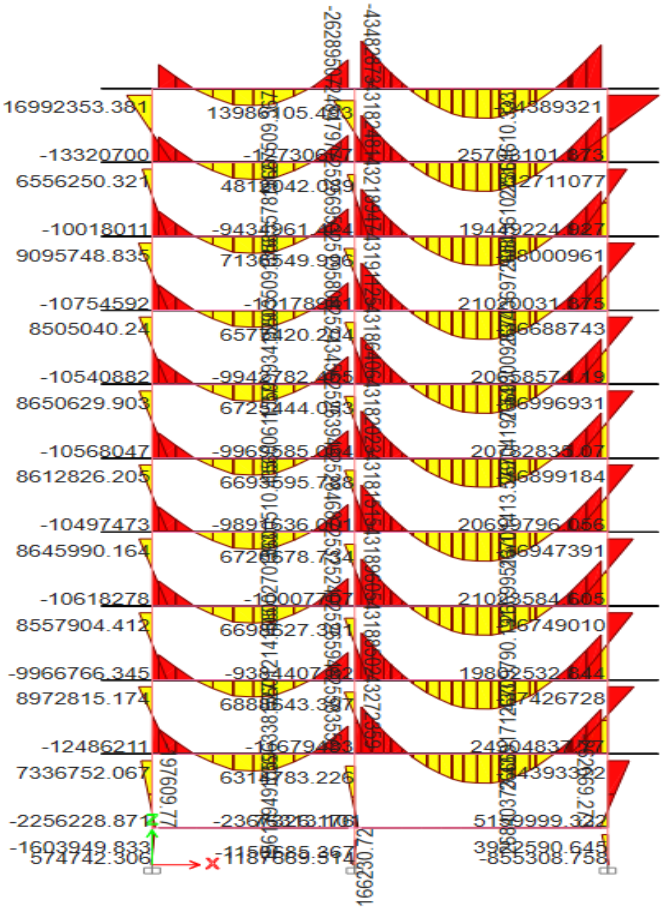


Fig: Moment 3-3 Diagram

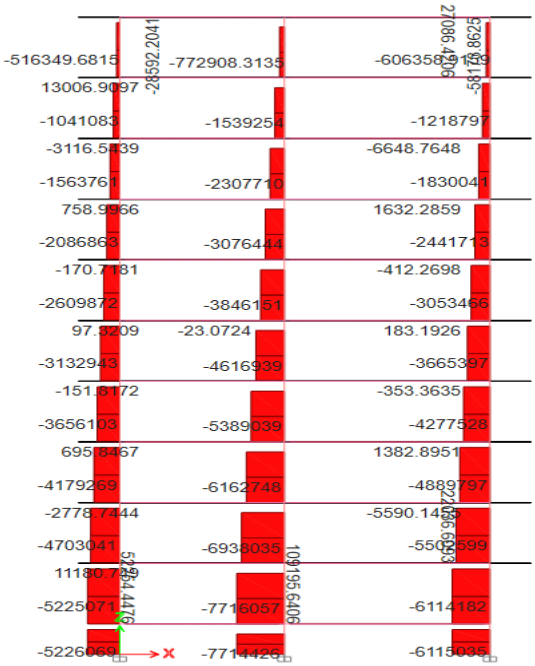
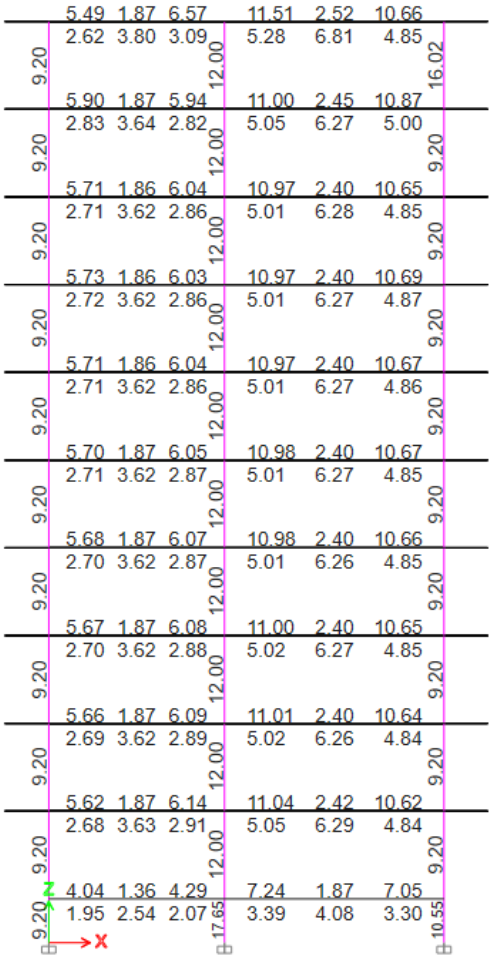


Fig: Axial Force Diagram



Elevation- A

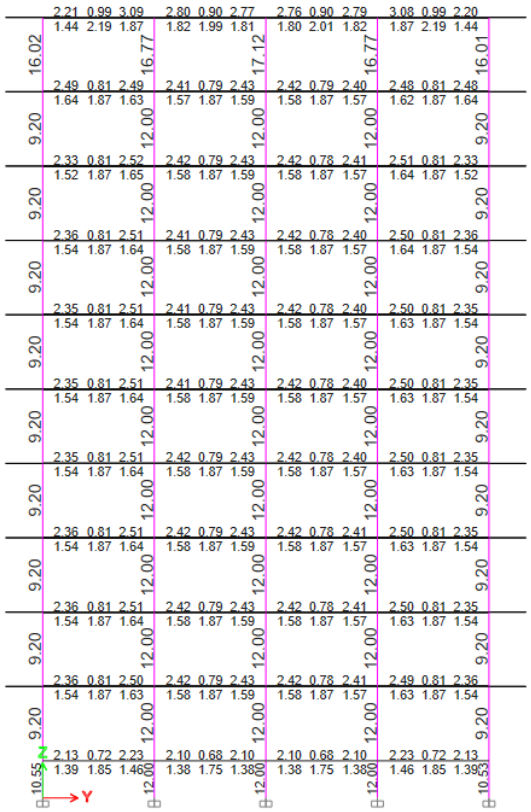


Fig: Elevation-D

Time Story Analysis:

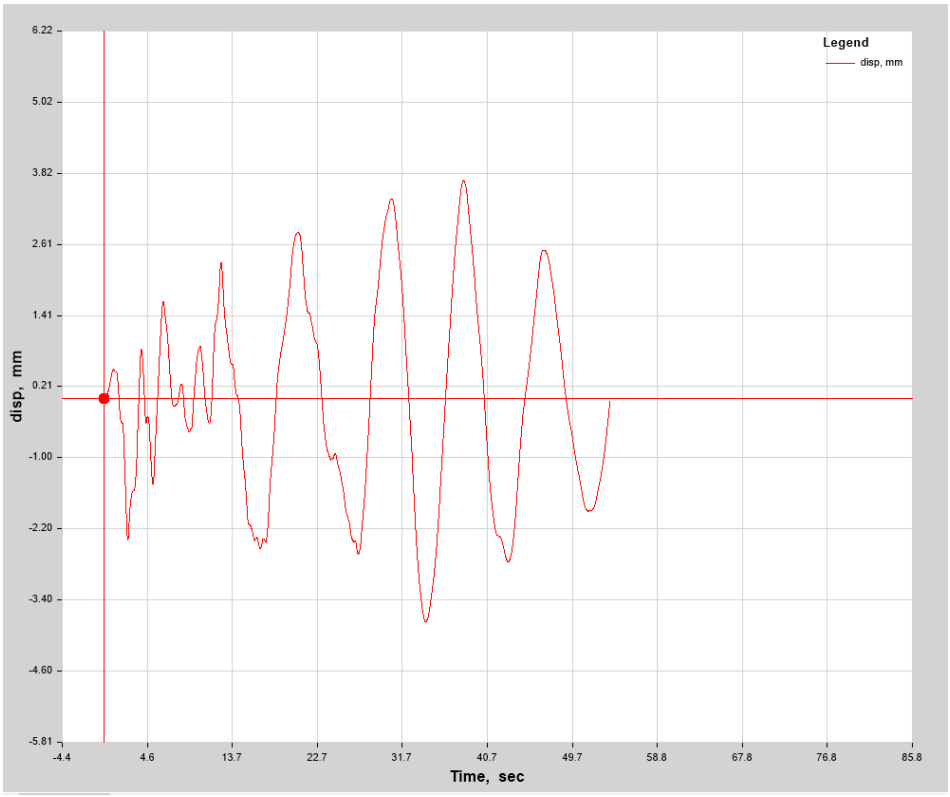


Fig: Displacement

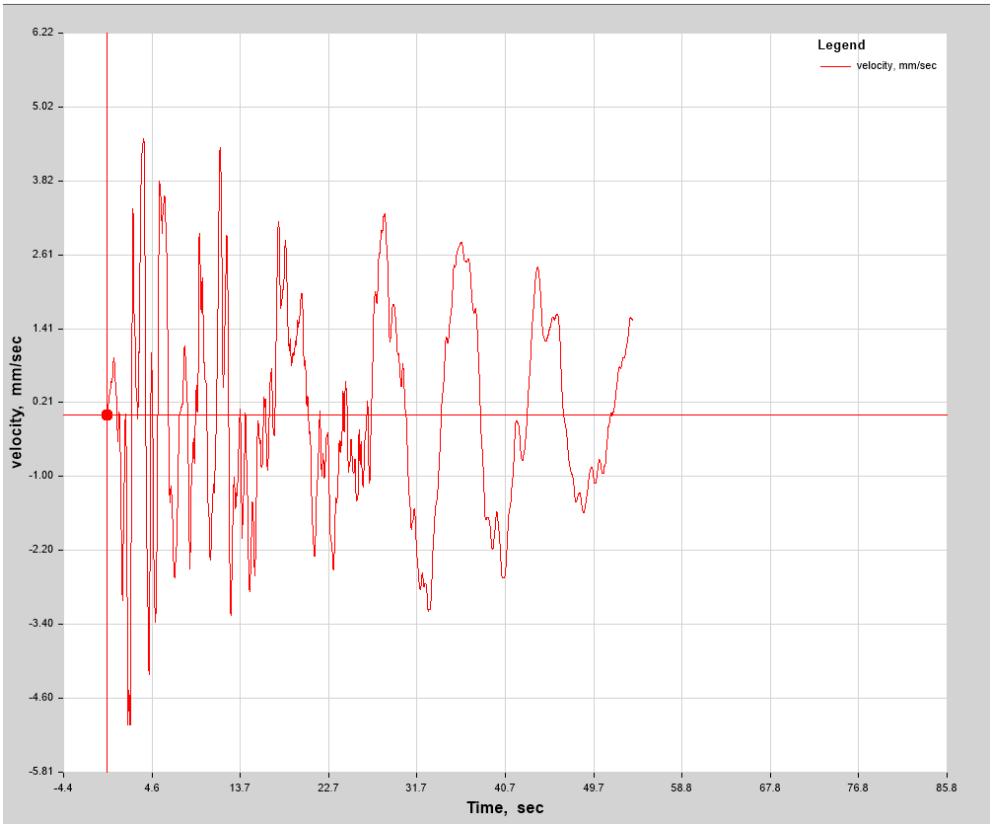


Fig: velocity

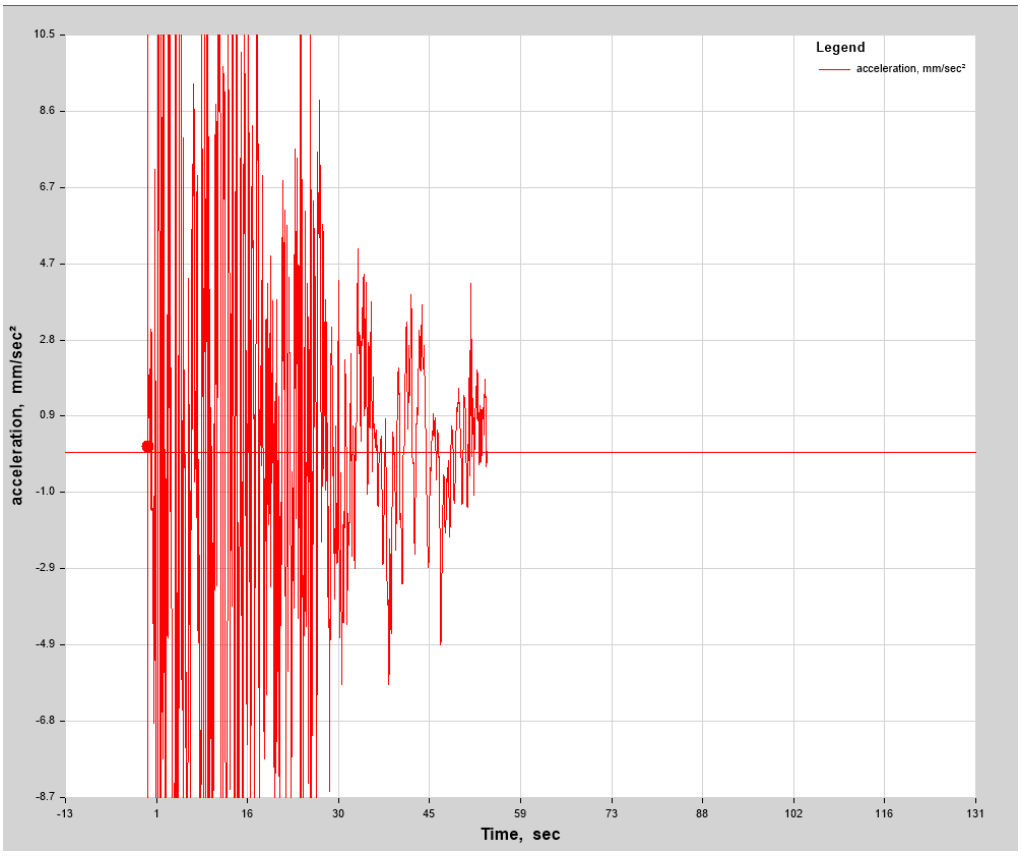
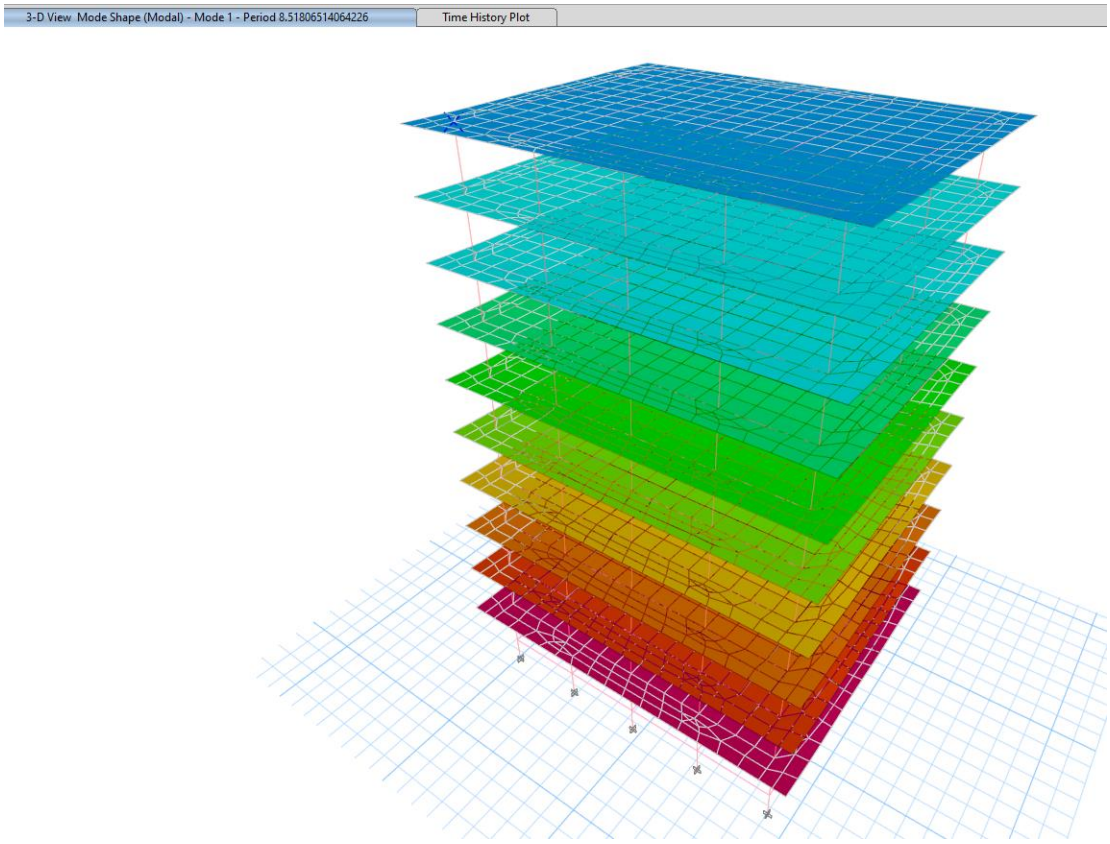
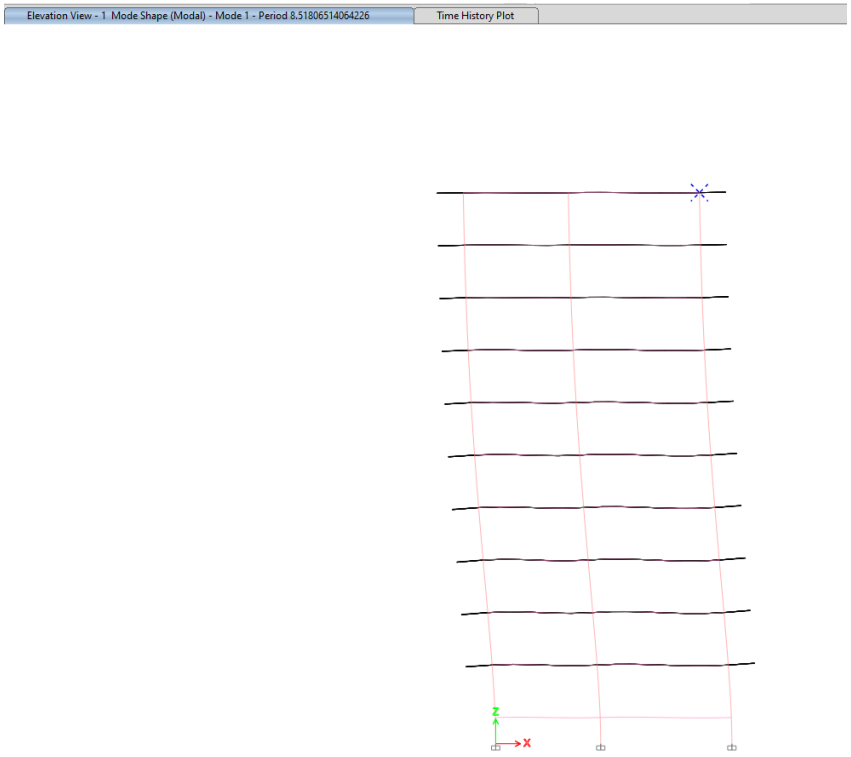


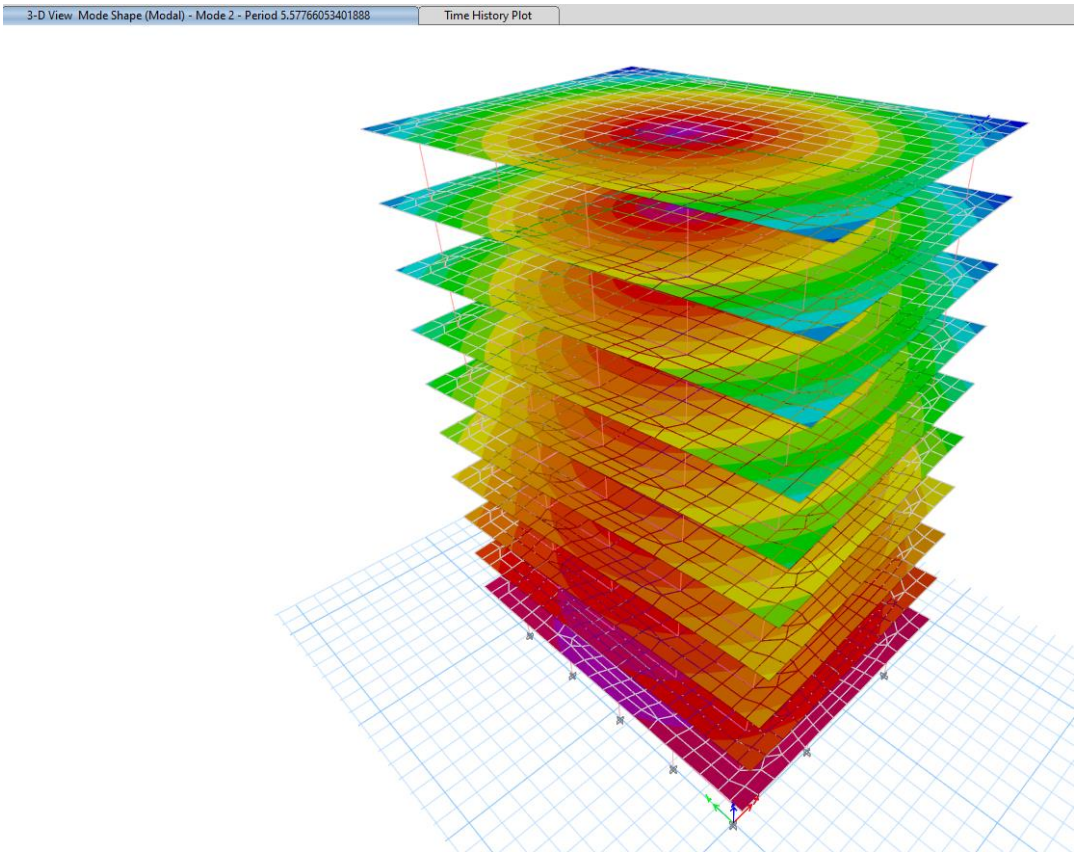
Fig: Acceleration



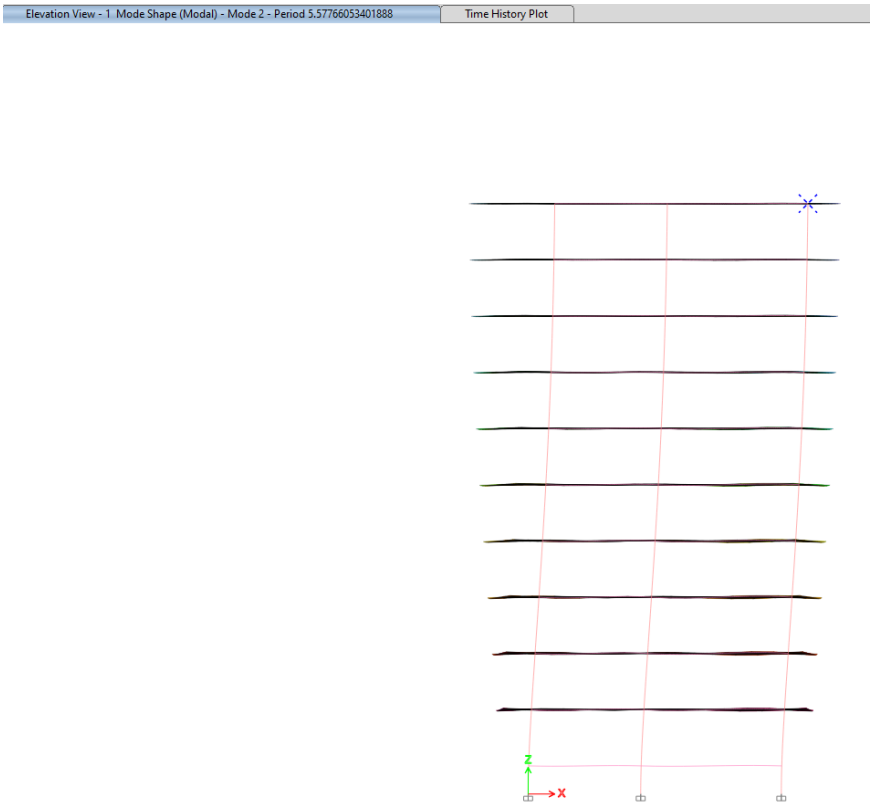
3D View Mode-01



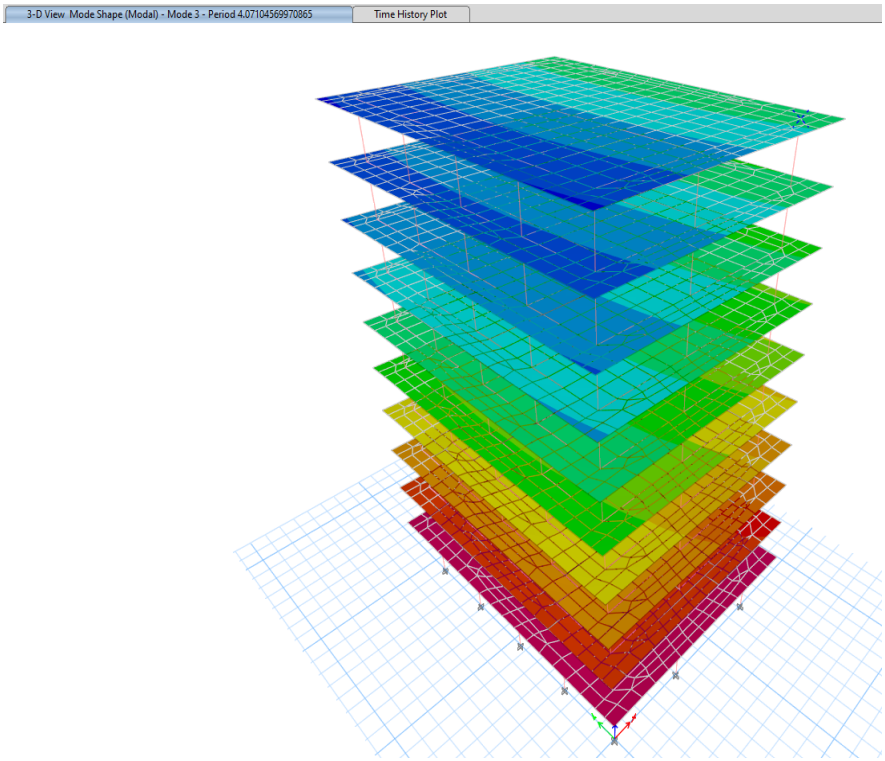
Elevation View-01 Mode-01



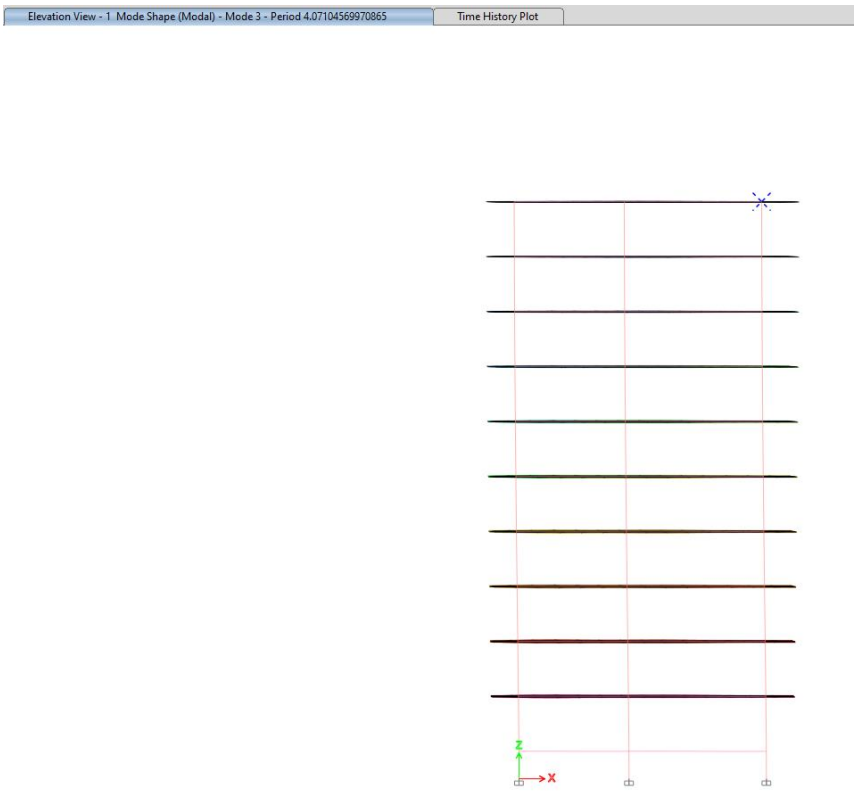
3D view Mode-02



Elevation-01 Mode-02



3D view Mode-03



Elevation-01 Mode-03

Modal Frequency:

Mode-1:

$$f = \frac{1}{8.518} = 0.1174\ Hz$$

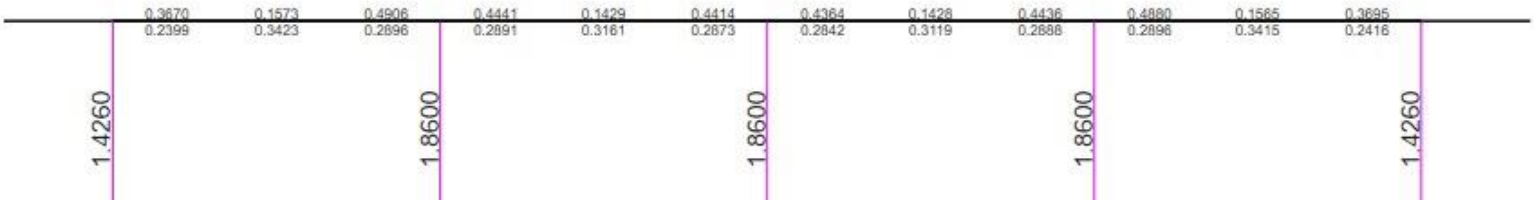
Mode-2:

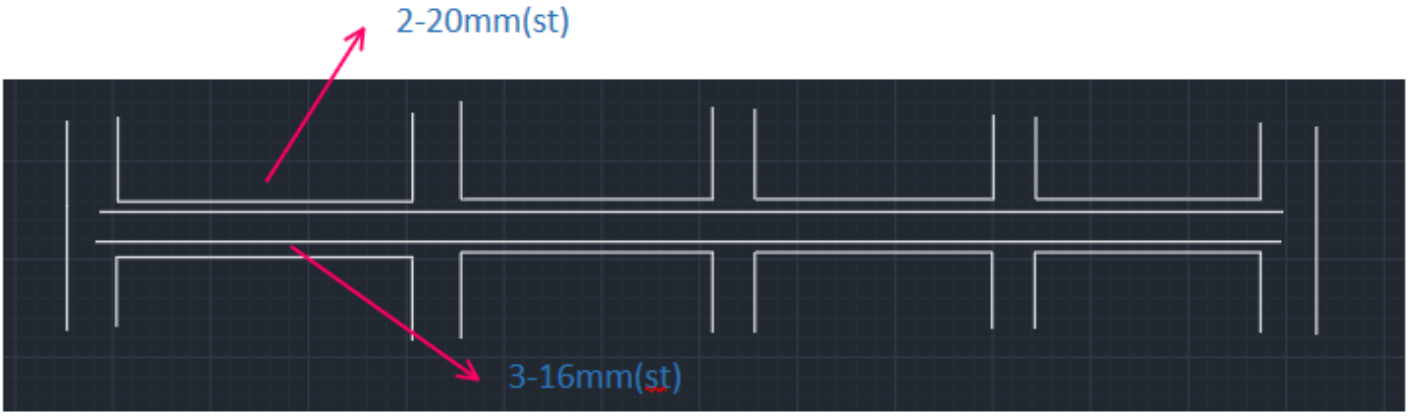
$$f = \frac{1}{5.578} = 0.1793\ Hz$$

Mode-03:

$$f = \frac{1}{4.071} = 0.4564\ Hz$$

Beam Detailing (RF B1)





Column Detailing, Column-3C (16x12in^2)

A=2.10in^2