UNIVERSITY OF ASIA PACIFIC
DEPARTMENT OF CIVIL ENGINEERING

PROJECT REPORT

CE 418
Computer Applications in Civil and Environmental Engineering
Semester: Spring 2023

Submitted To:

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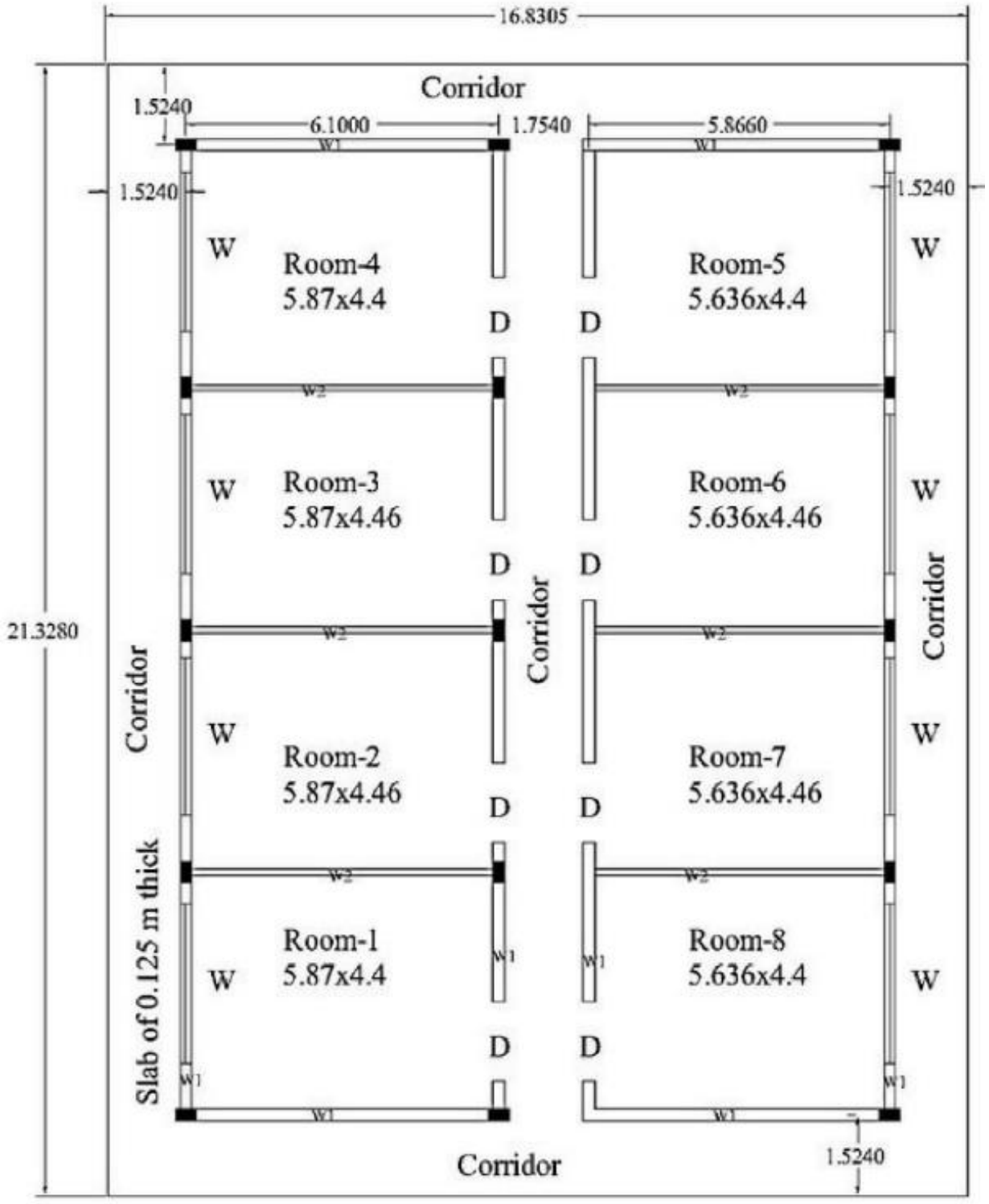


Fig: Plan View of the Building (Story 1- Story 10)

Building type: Shopping Center

District: Jhalokati

Building type: Shopping Center

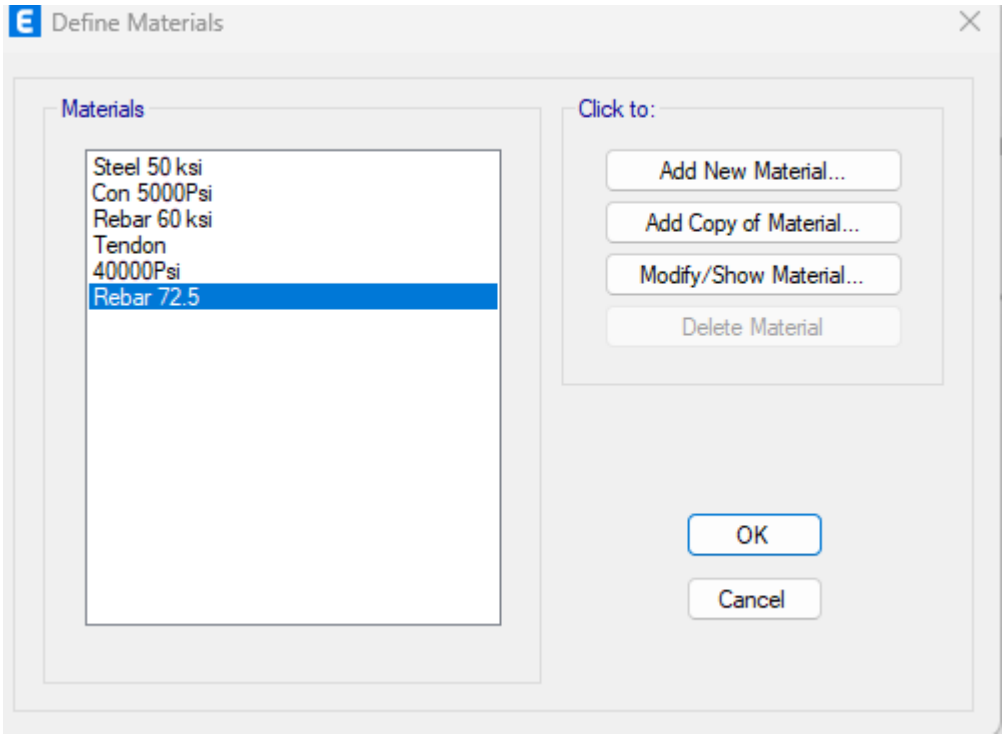
Soil Type: 4

Story Height: 10 ft

Base Height: 5 ft

Total Floor Area: 358.96 sqm = 3863.81sq ft

Material Property:



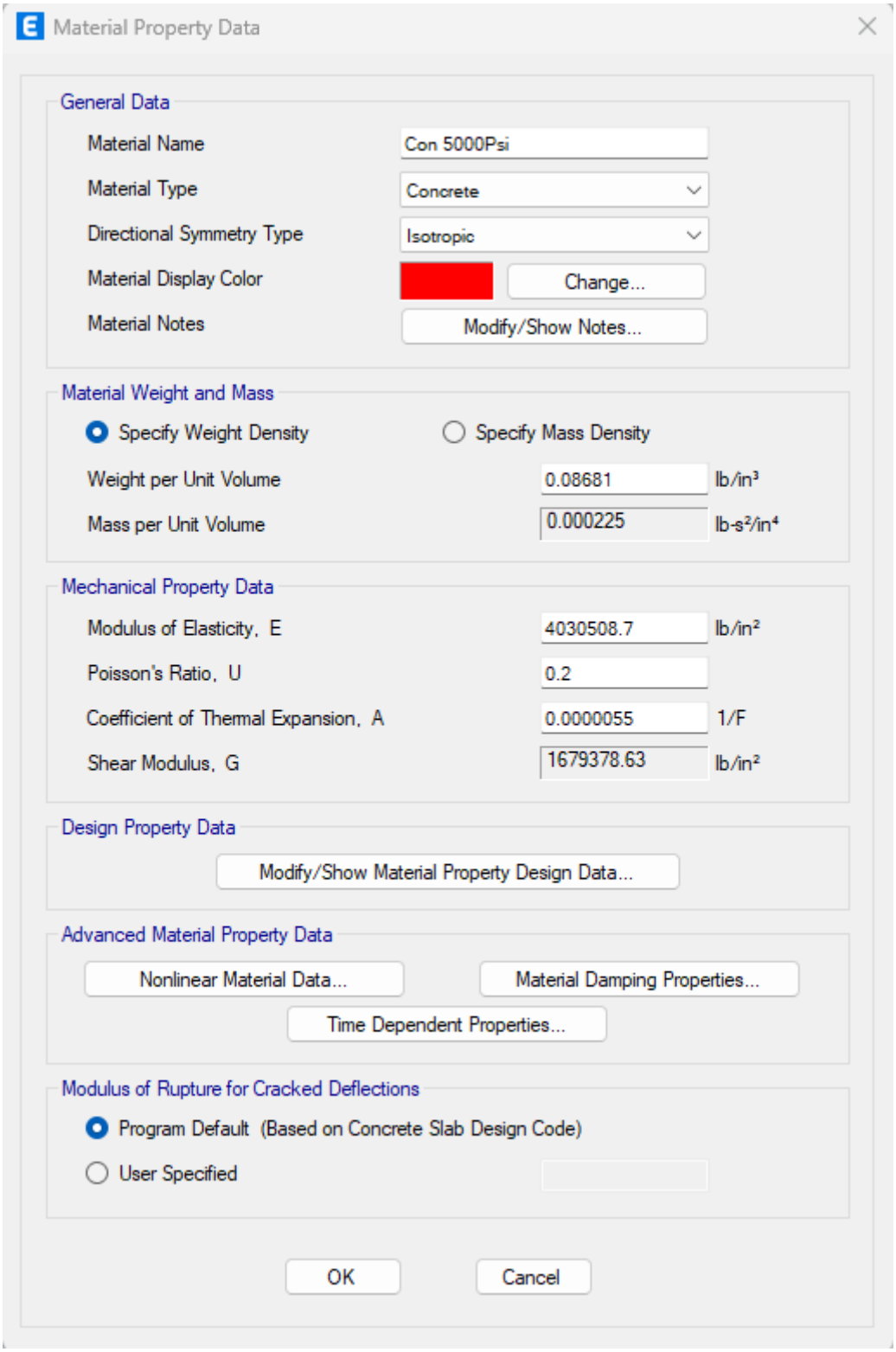
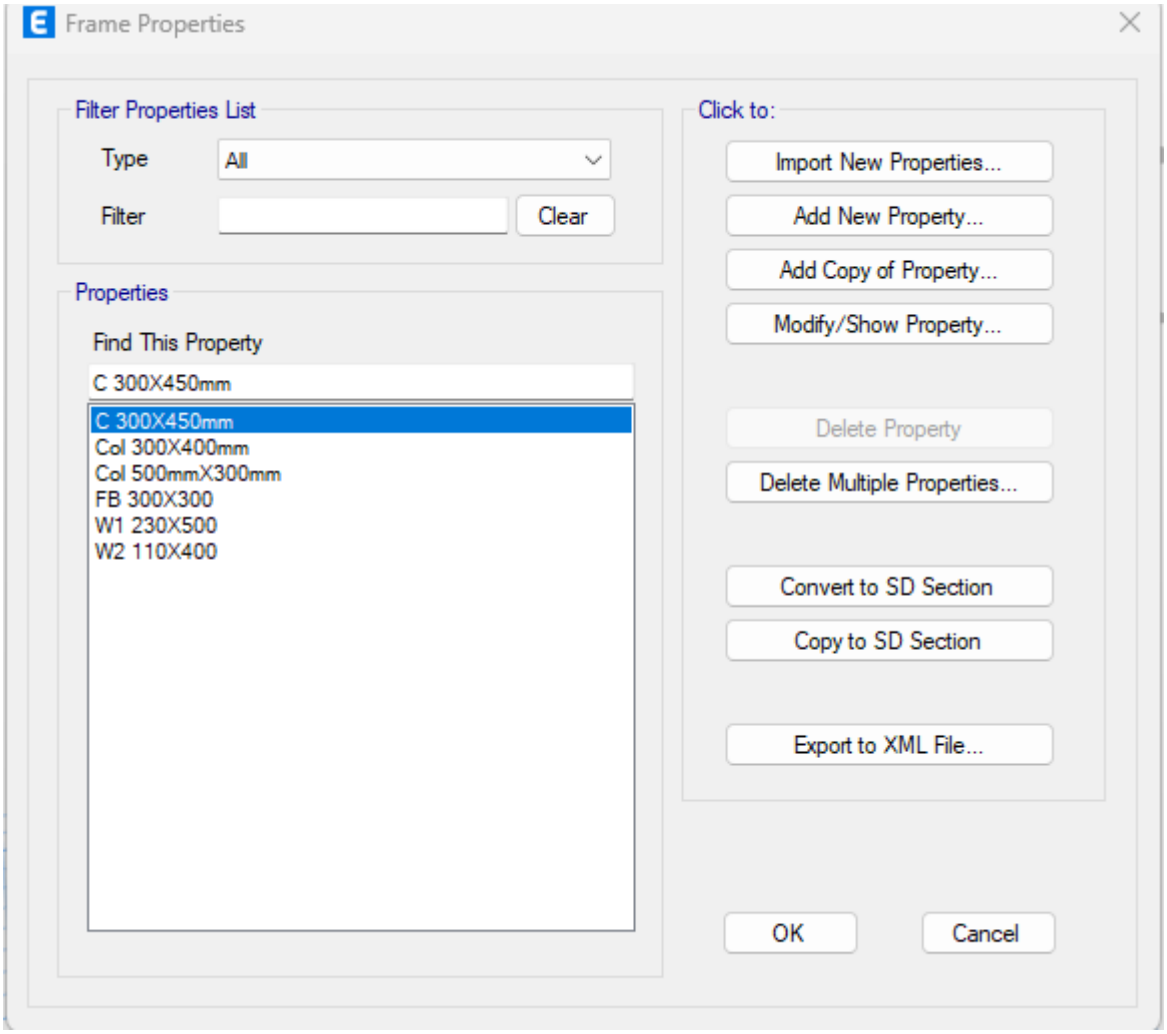
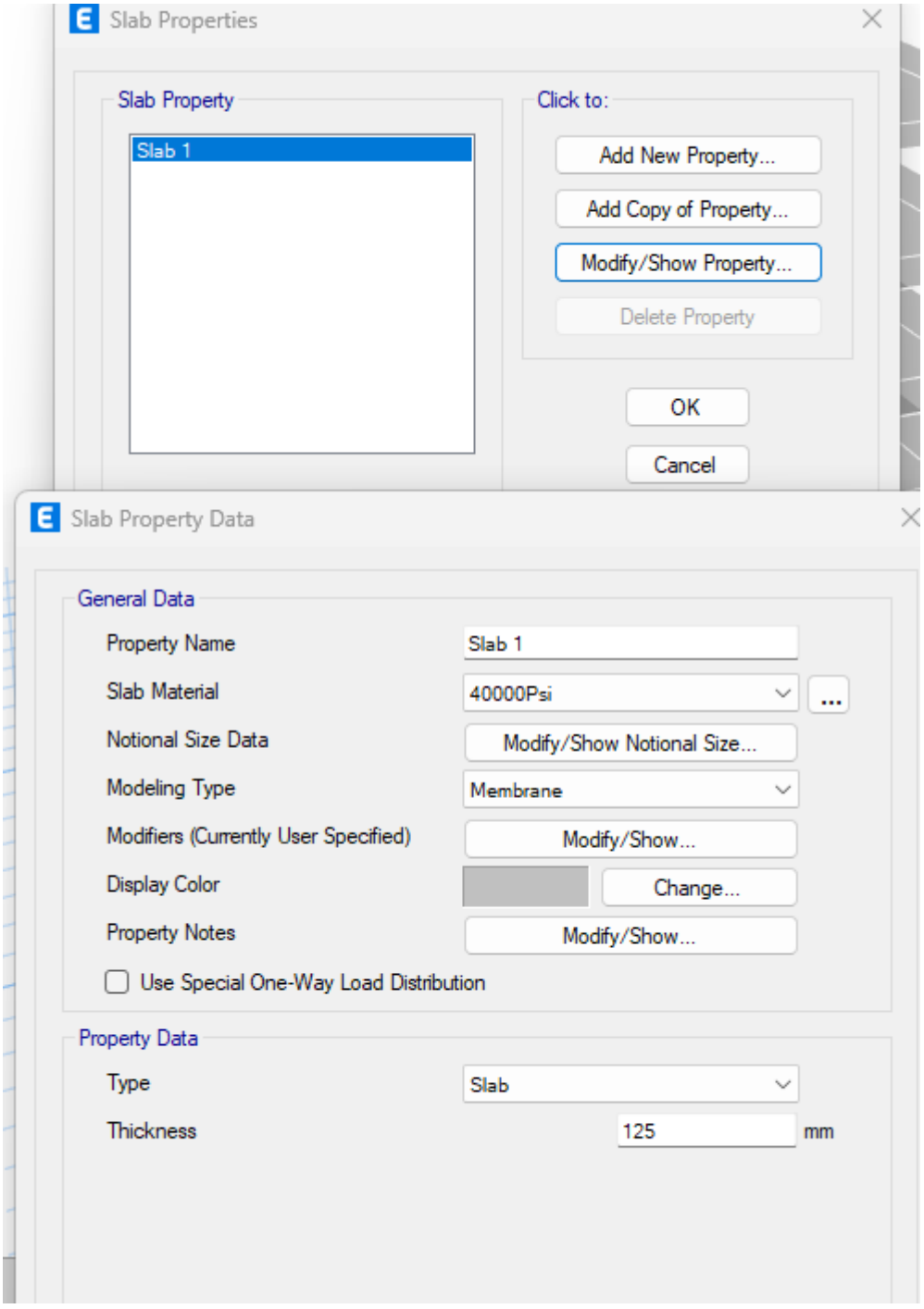


Fig: Material Property of Concrete 5000 psi assigned in column and beams

Frame section:



Slab Section:



Loads:

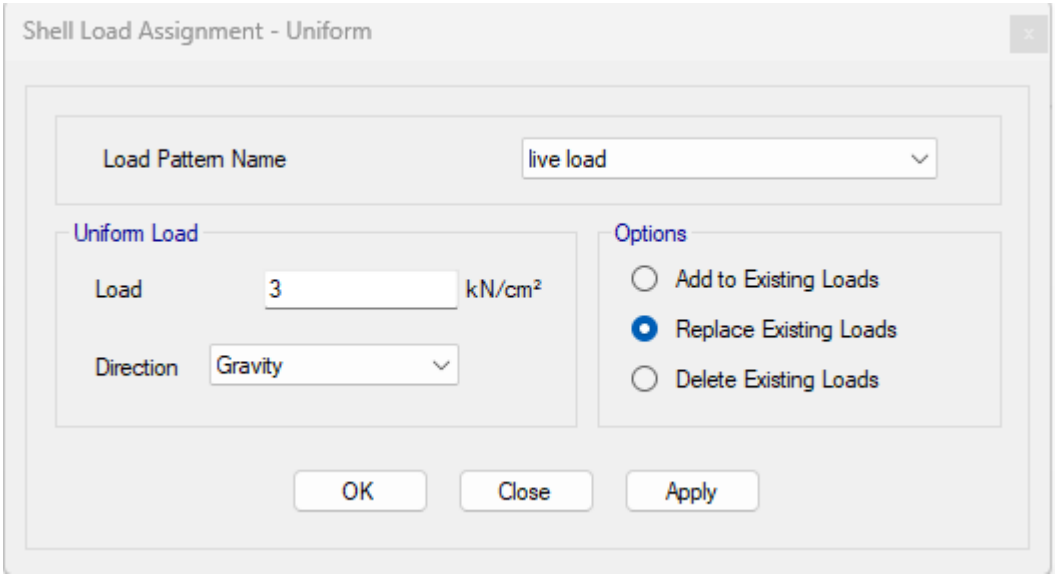


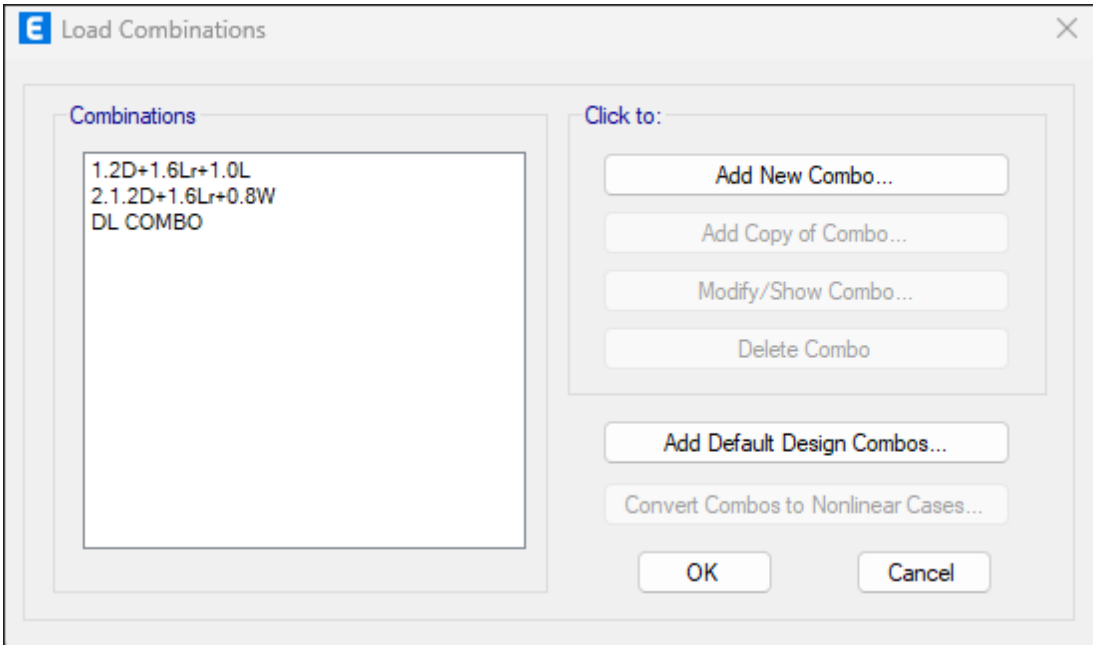
Fig: live load for Shopping Center

Live Load: 3KN/Cm2

Wind Speed, Wx= 178.955mph

Wy= 178.955mph (90 degree)

Load Combinaiton:



Building Model:

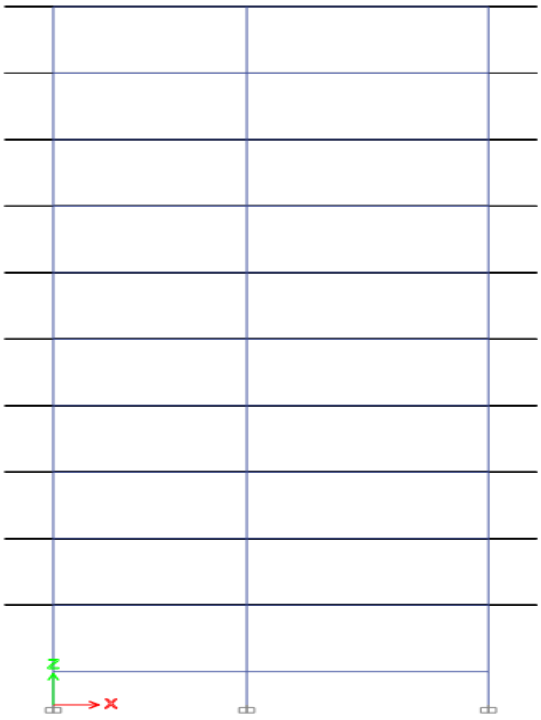


Fig: Elevation:1

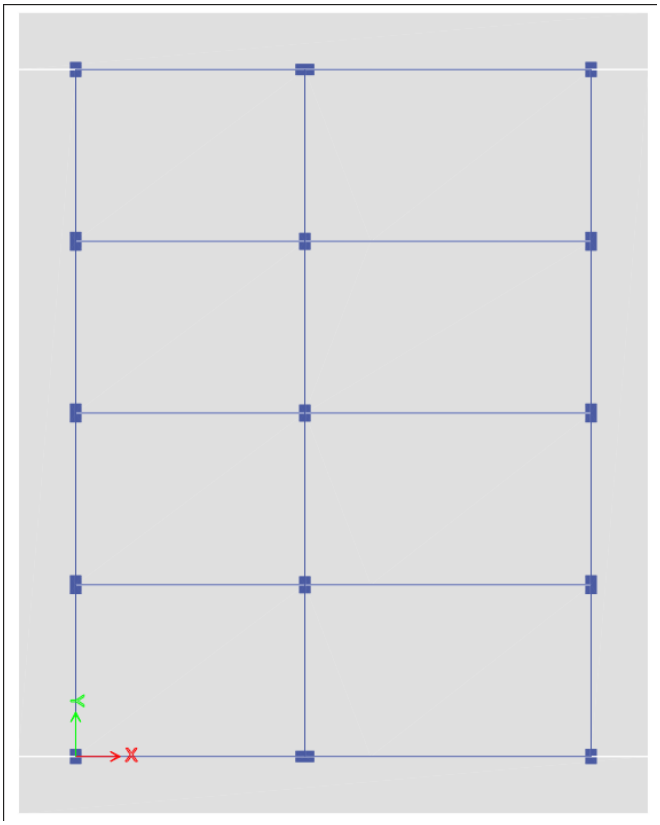


Fig: Plan View

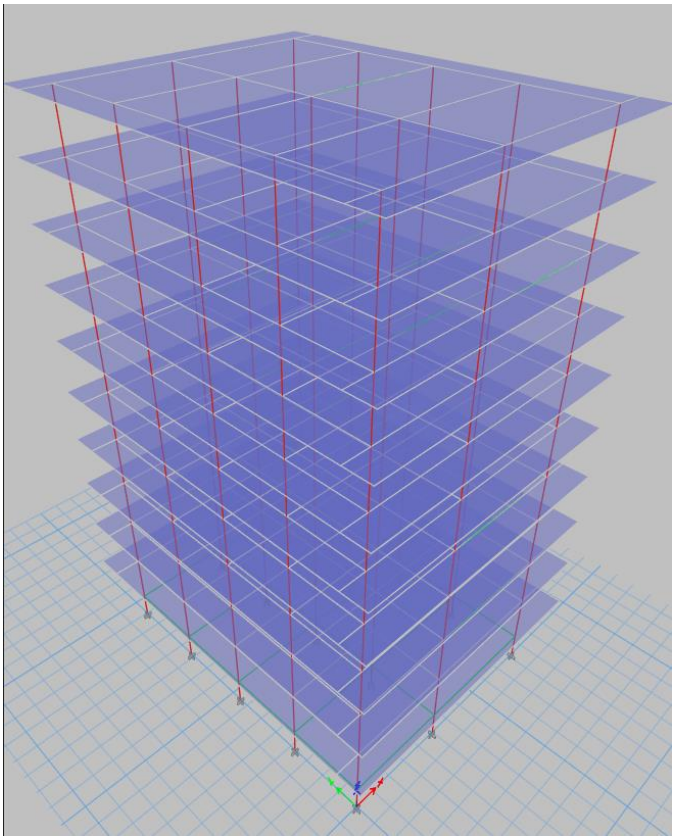
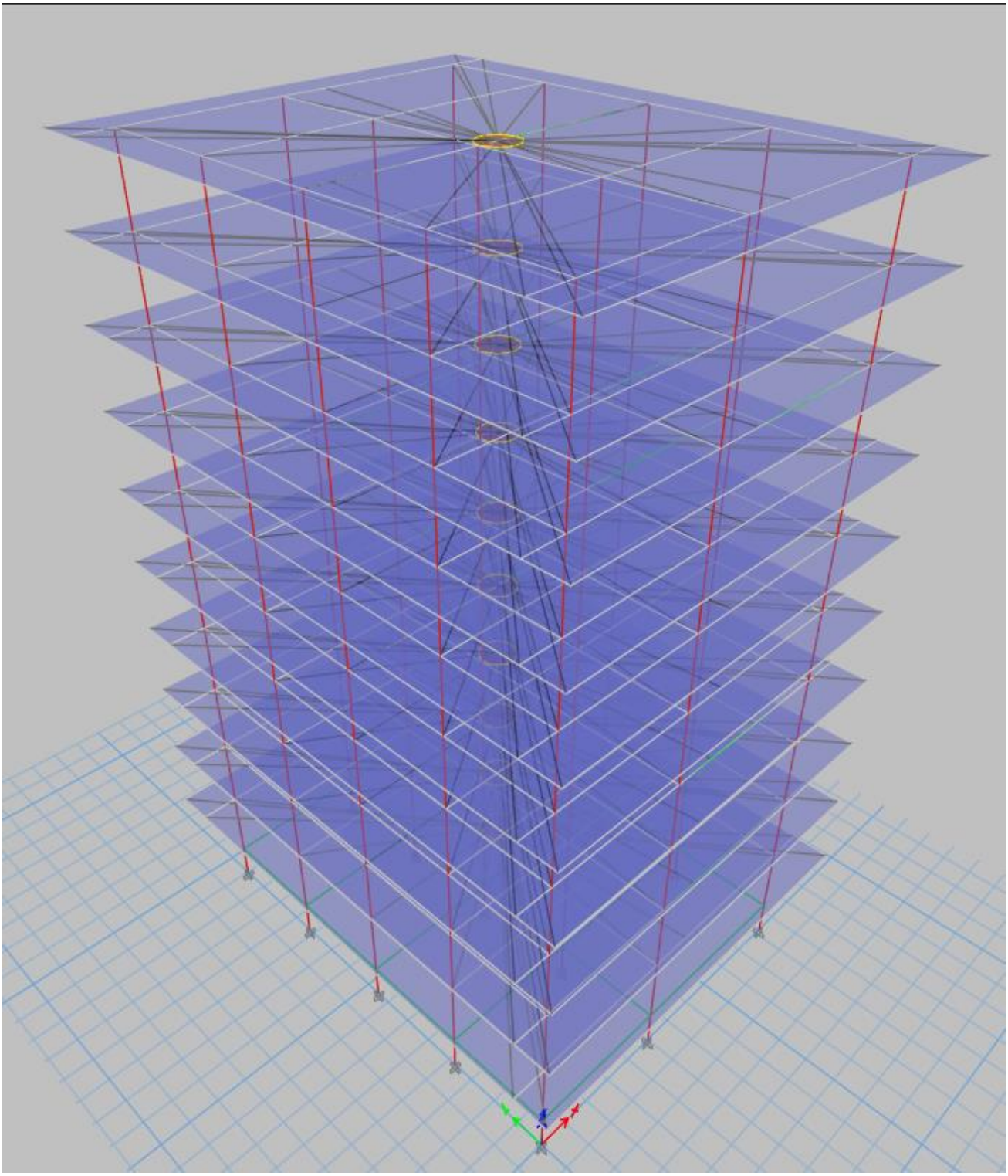


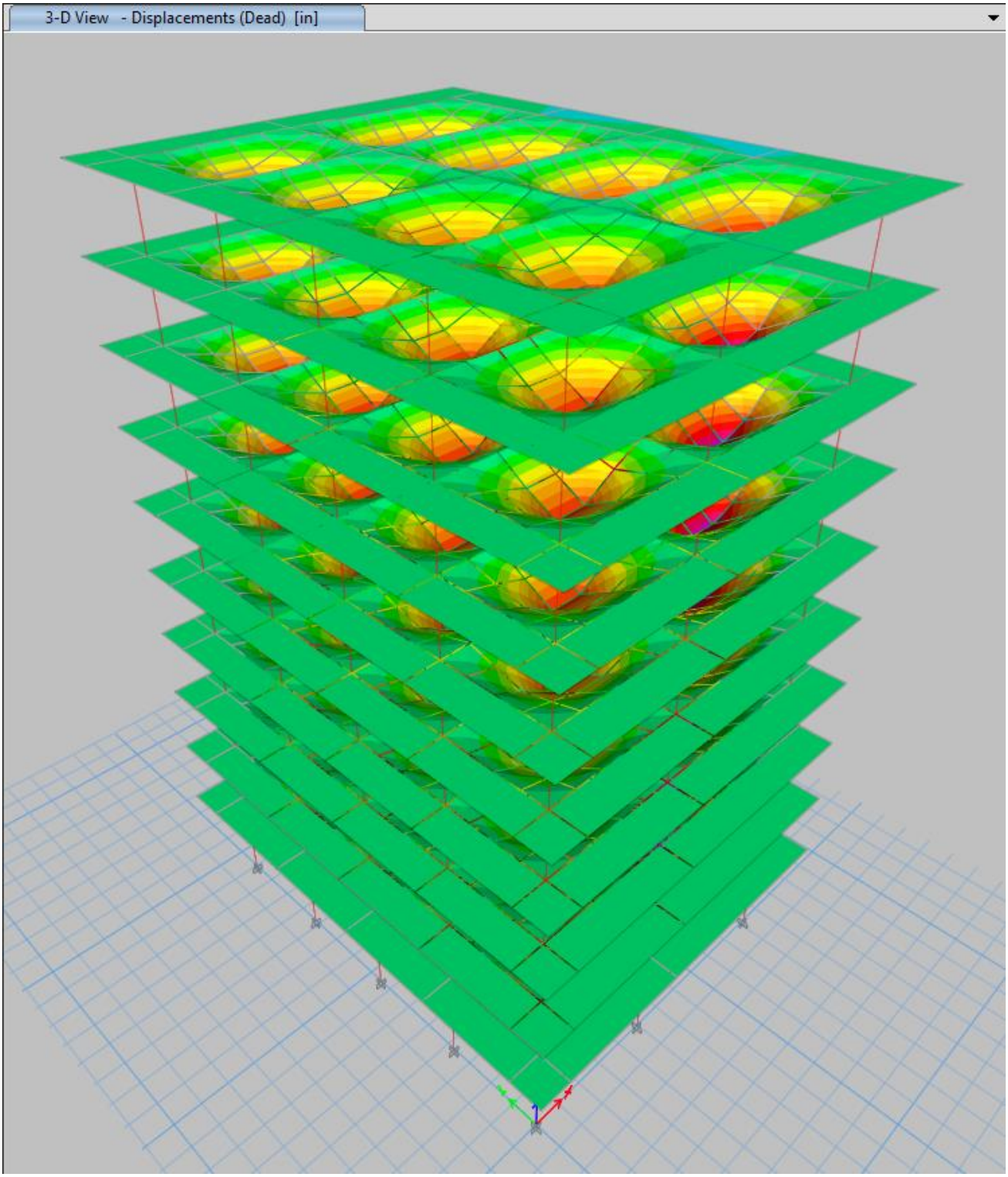
Fig: 3D view

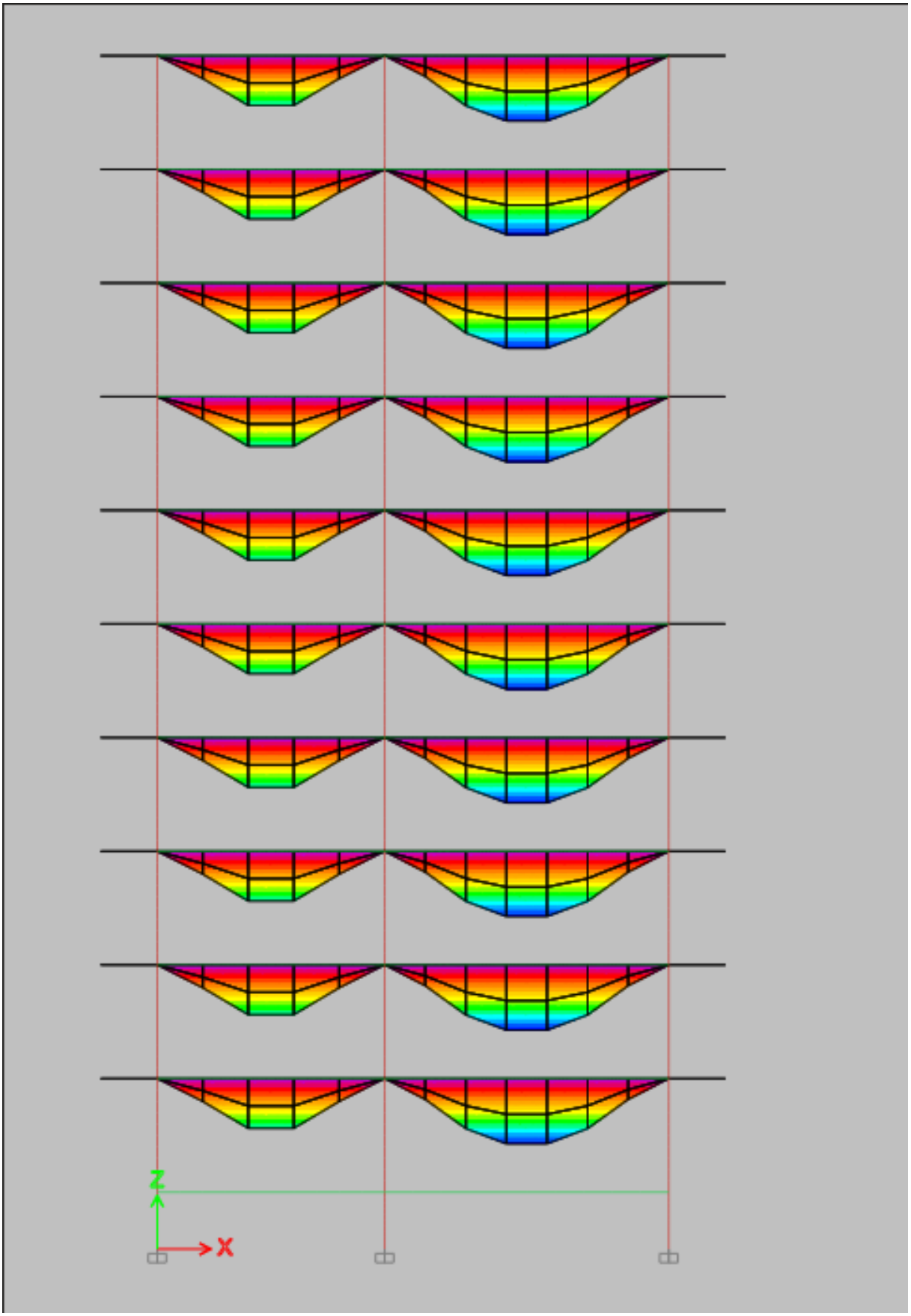
Mesh and Diaphragms:



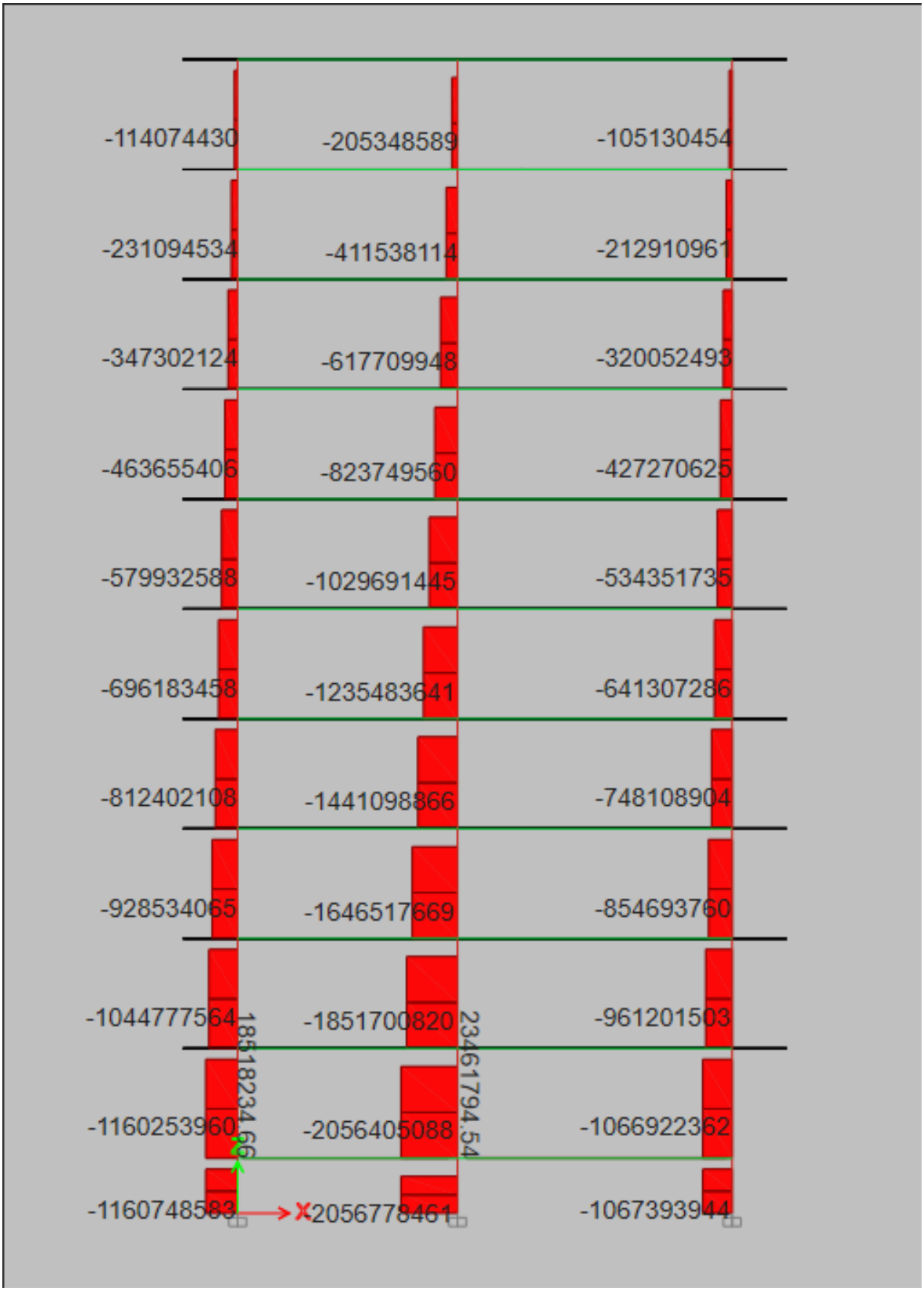
Run Analysis and Results:

Displace and Rotation

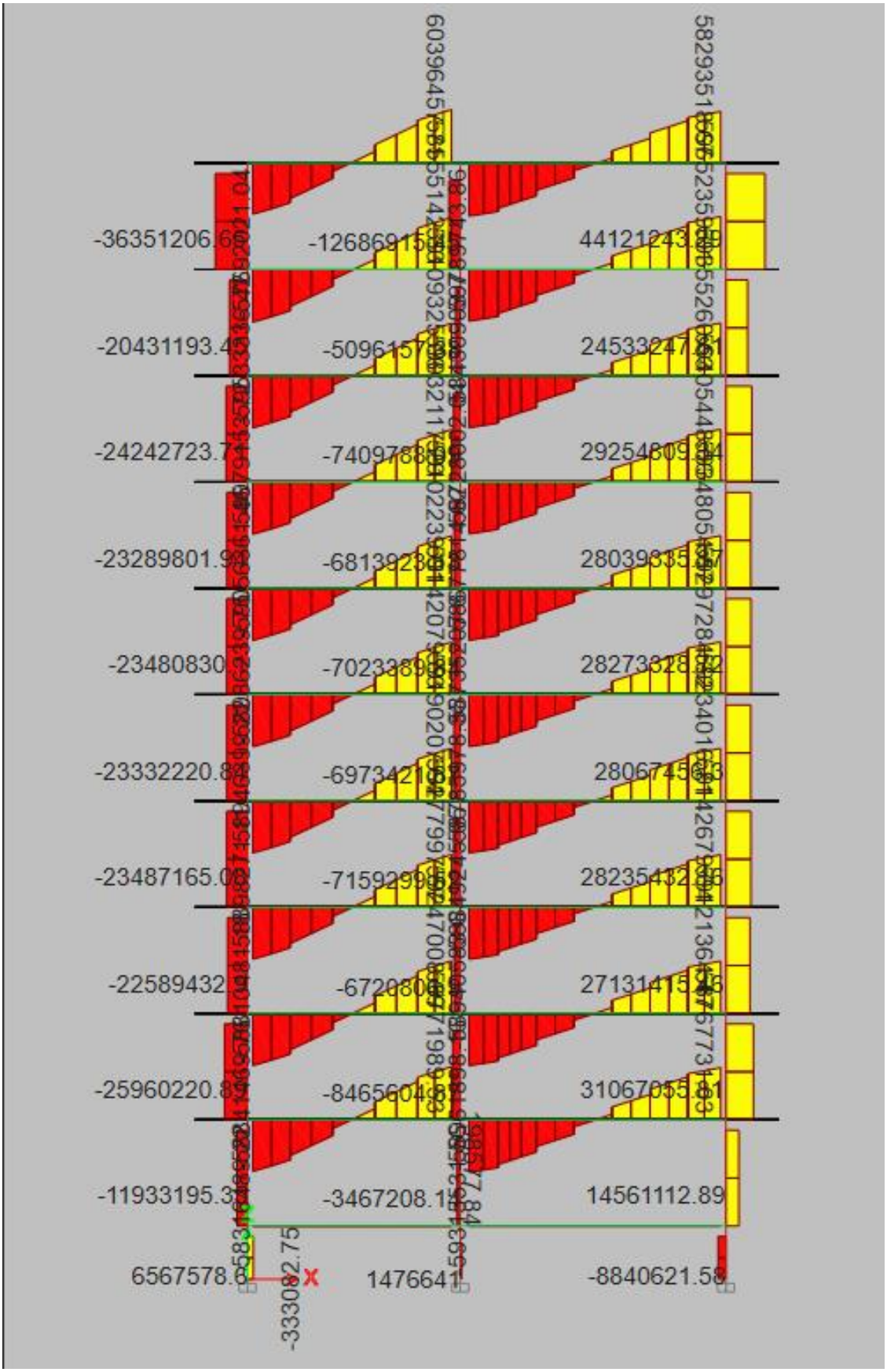



Z
X

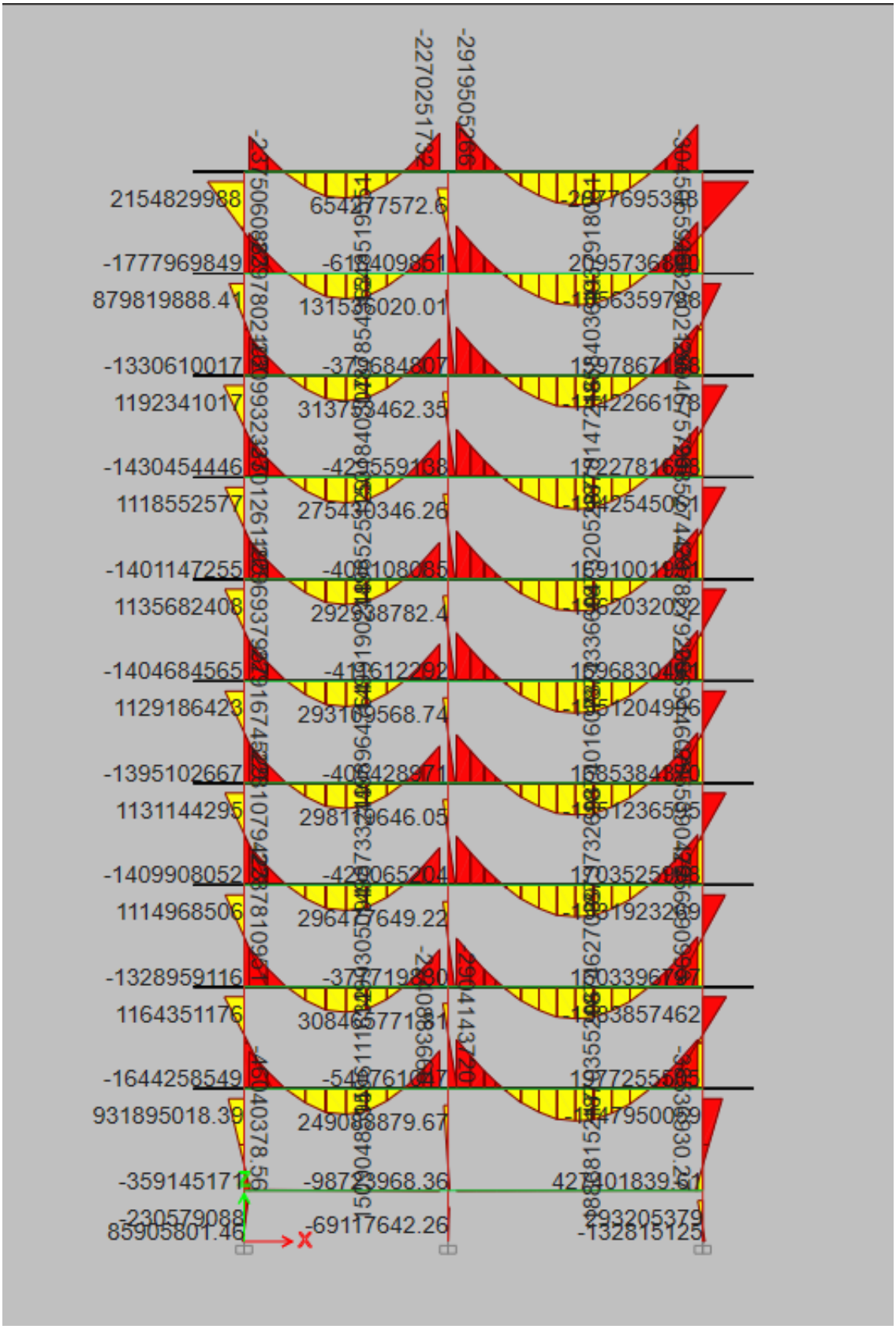
Axial Force Diagram (live):



Shear force 2-2 Diagram (Live):

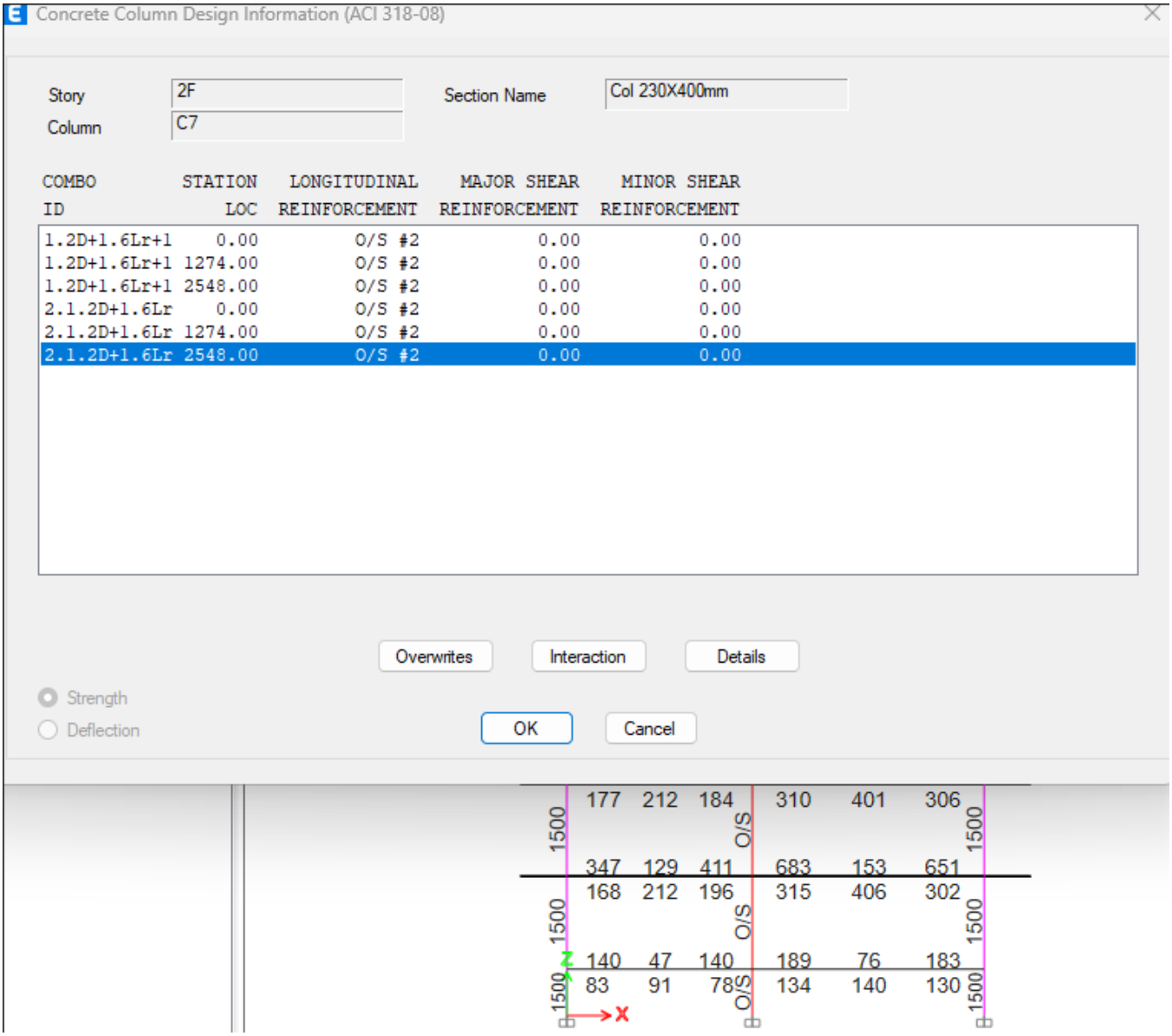


Moment 3-3 Diagram (live)

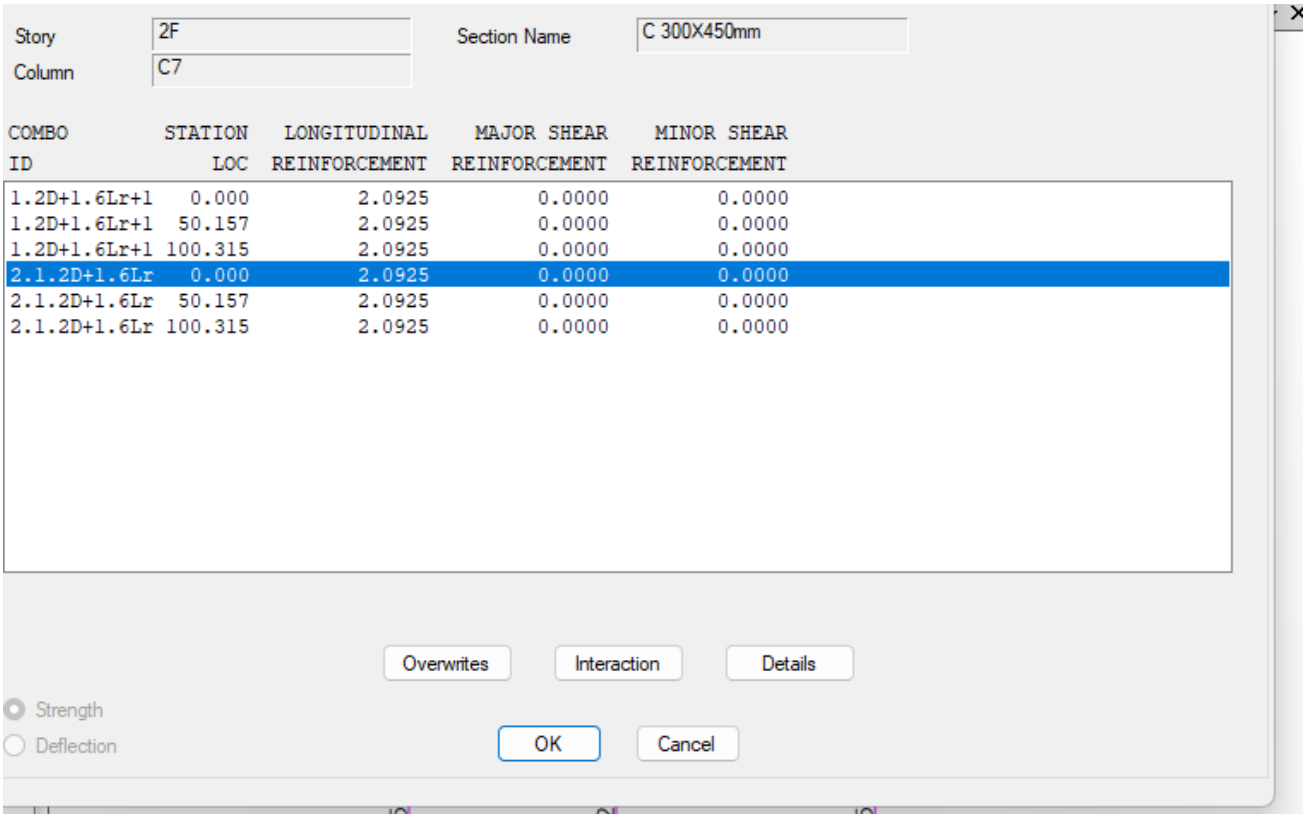


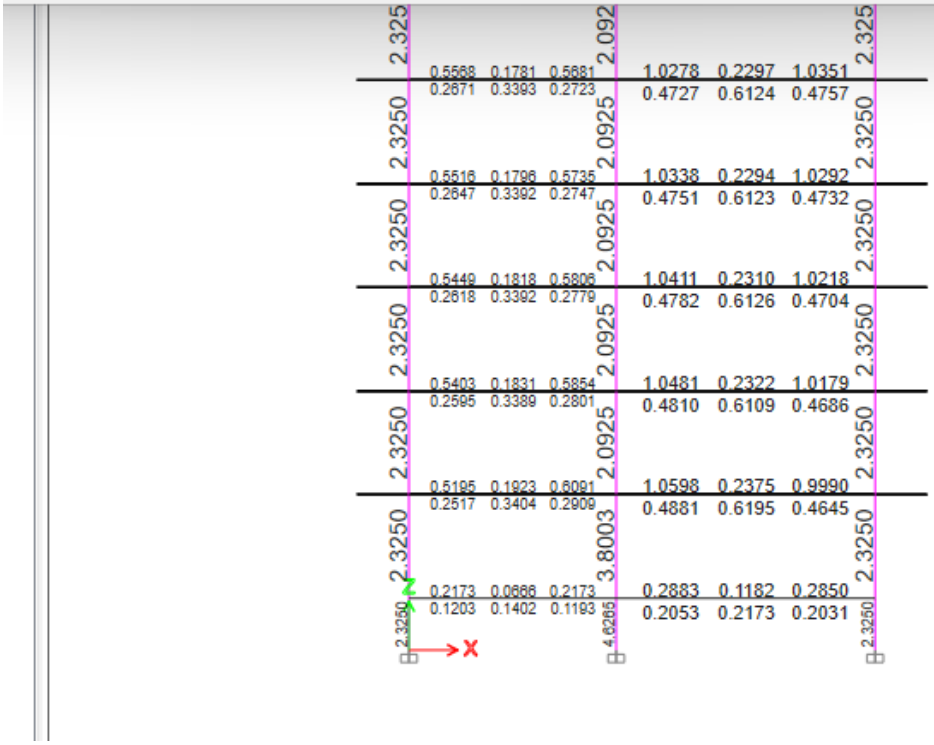
Detailing:

Elevation View 1 (O/S)

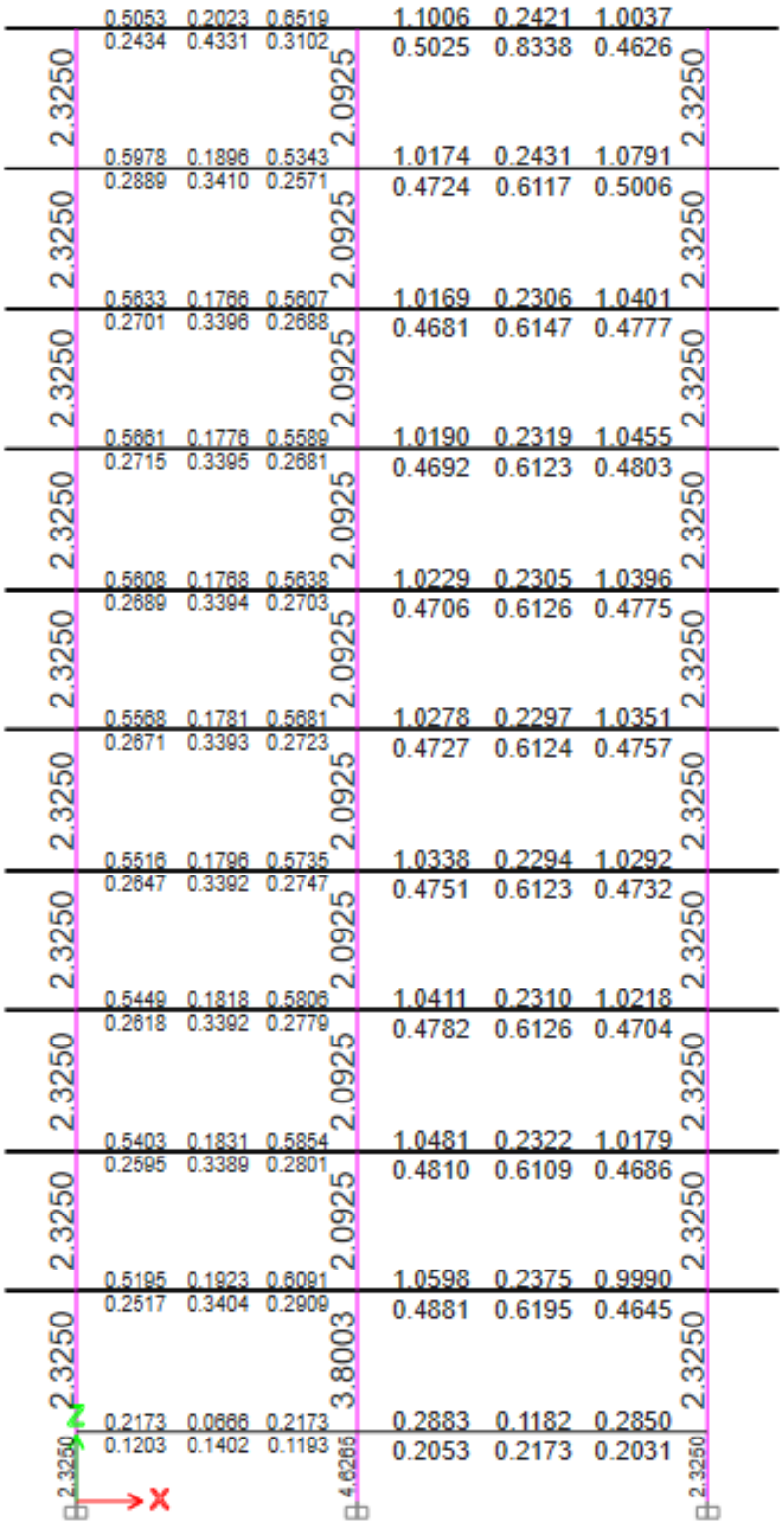


Elevation View 1 (Correction):



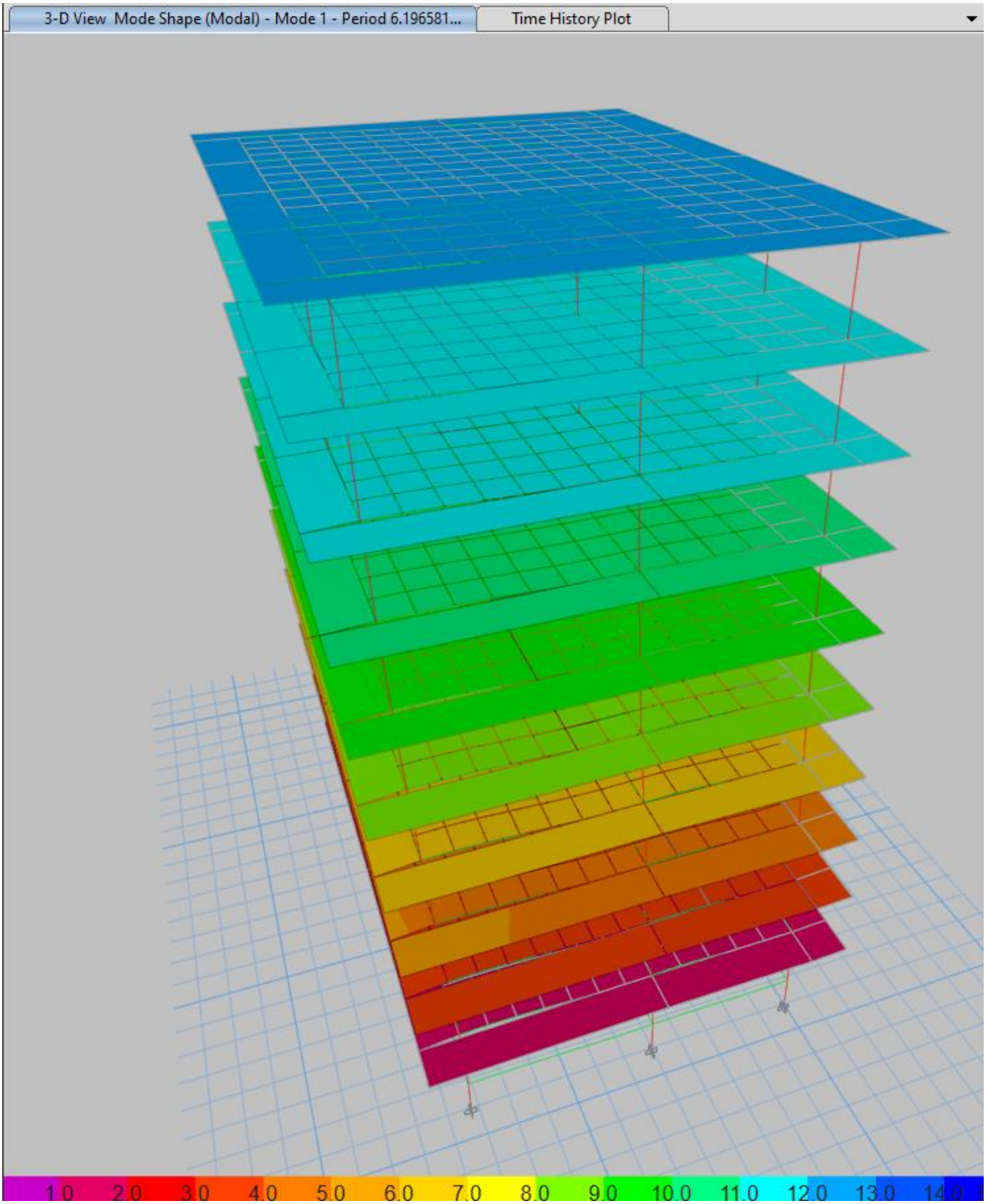


Elevation 1 Detailing

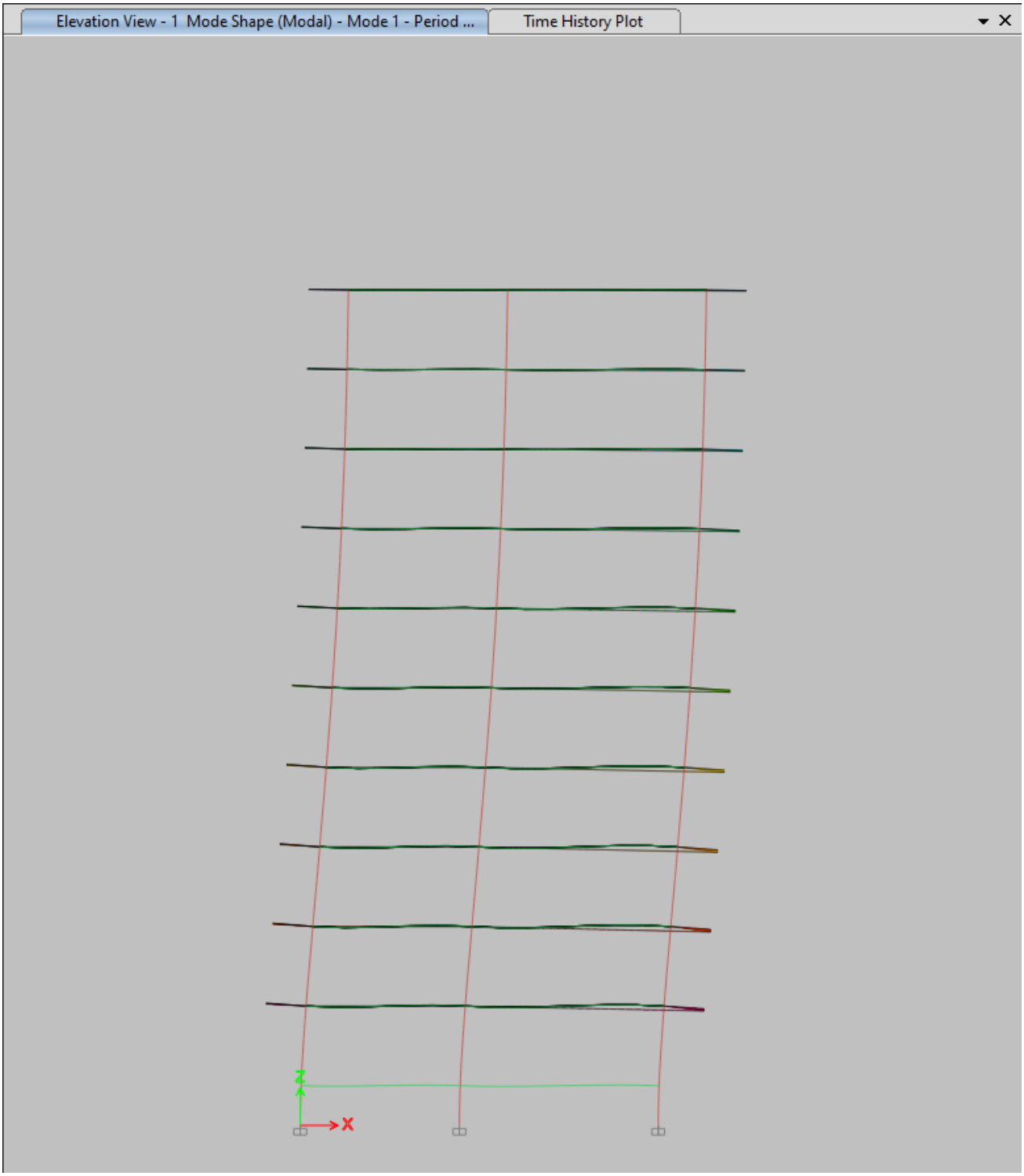


Time History Analysis:

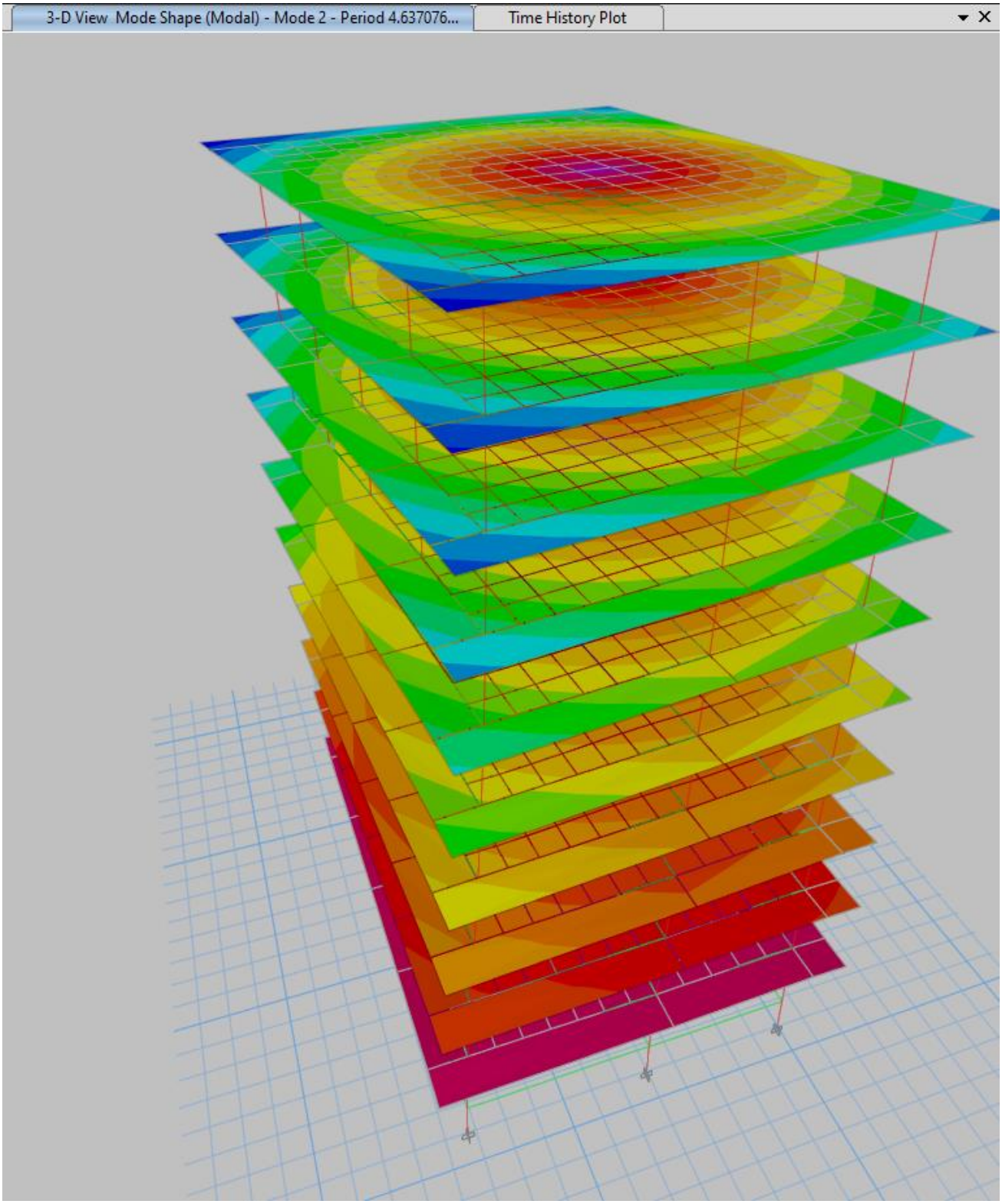
Mode 1 Period 6.196



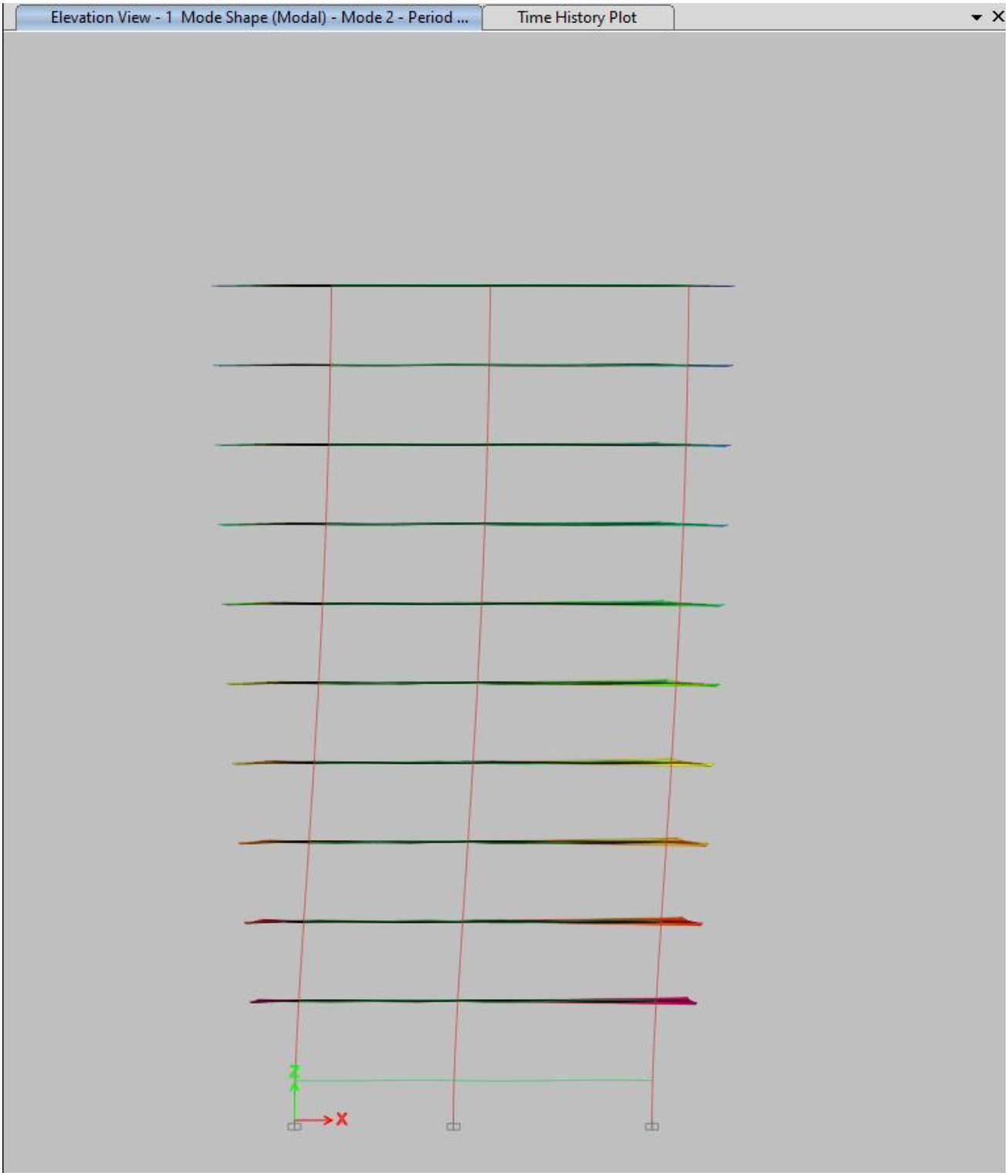
Elevation View 1 Mode 1 Period 6.196



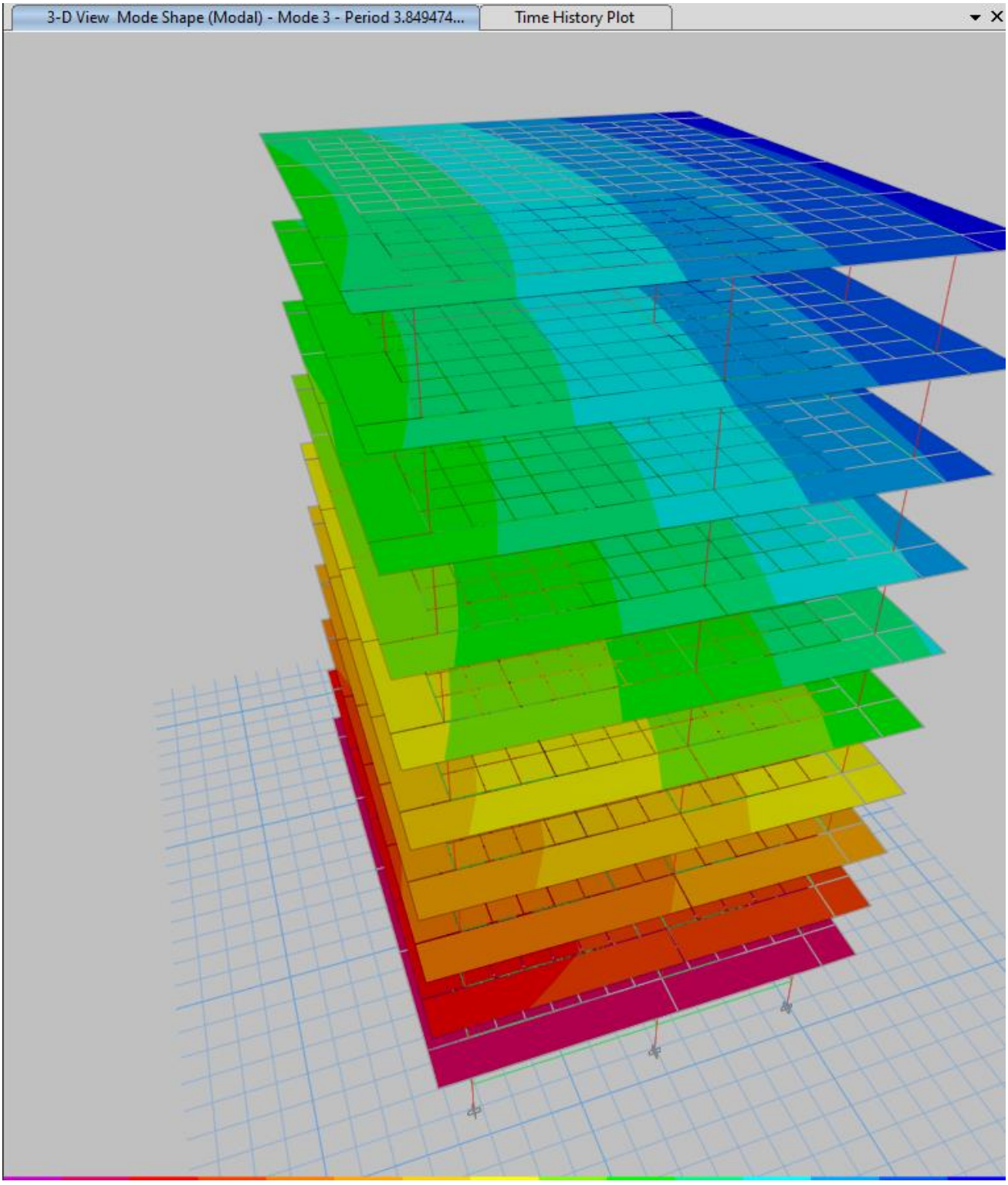
Mode Period 4.637



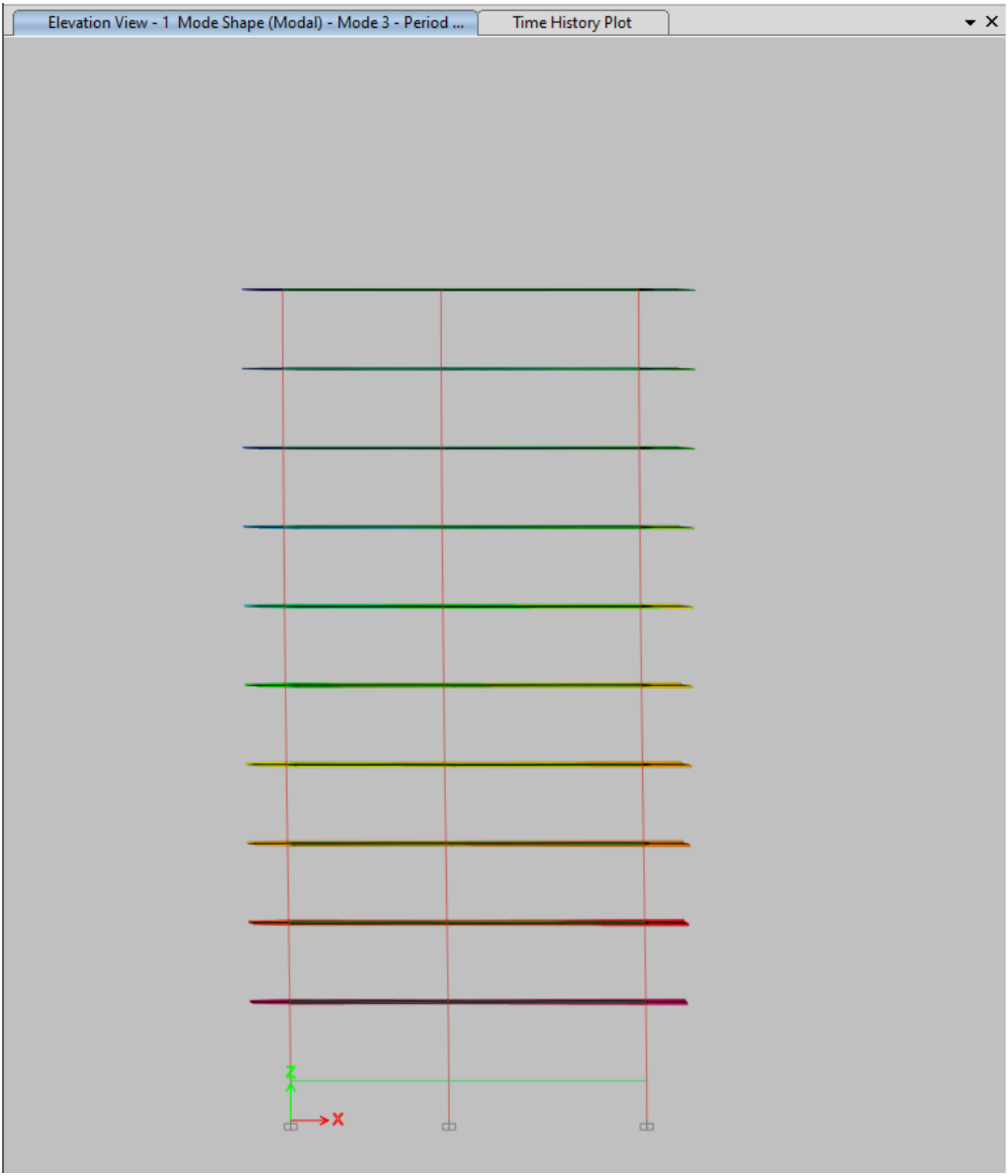
Elevation View 1 mode 2= 4.637



Mode 3 Period 3.845



Elevation view 1 mode 3 =3.845



Modal Frequency:

Mode 1

$$f = \frac{1}{6.196} = 0.161$$

Mode 2:

$$f = \frac{1}{4.637} = 0.2156$$

Mode 3:

$$f = \frac{1}{3.85} = 2.597$$

Displacement, Velocity and Acceleration (Rooftop Lebel 16):

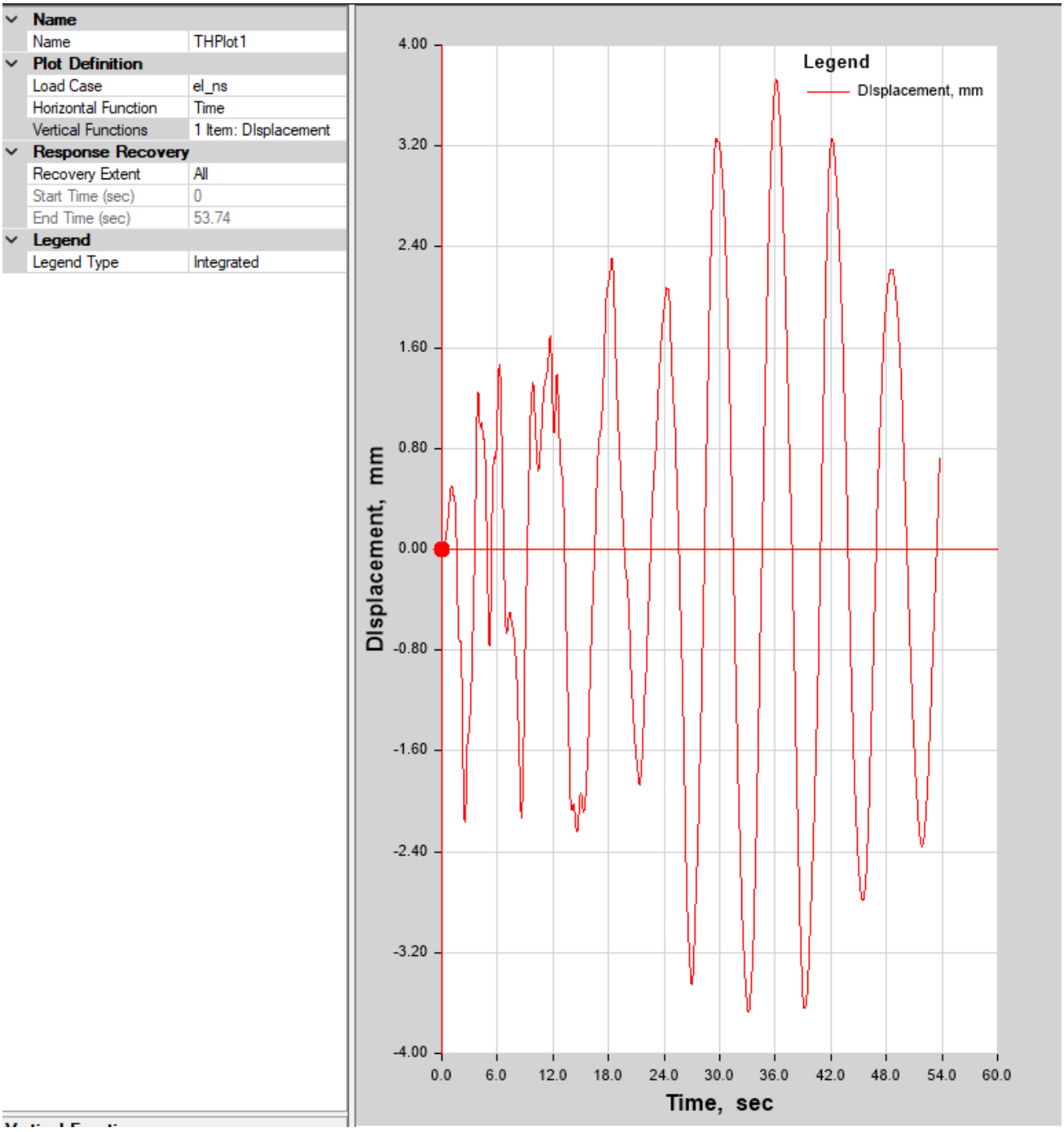


Fig: Displacement

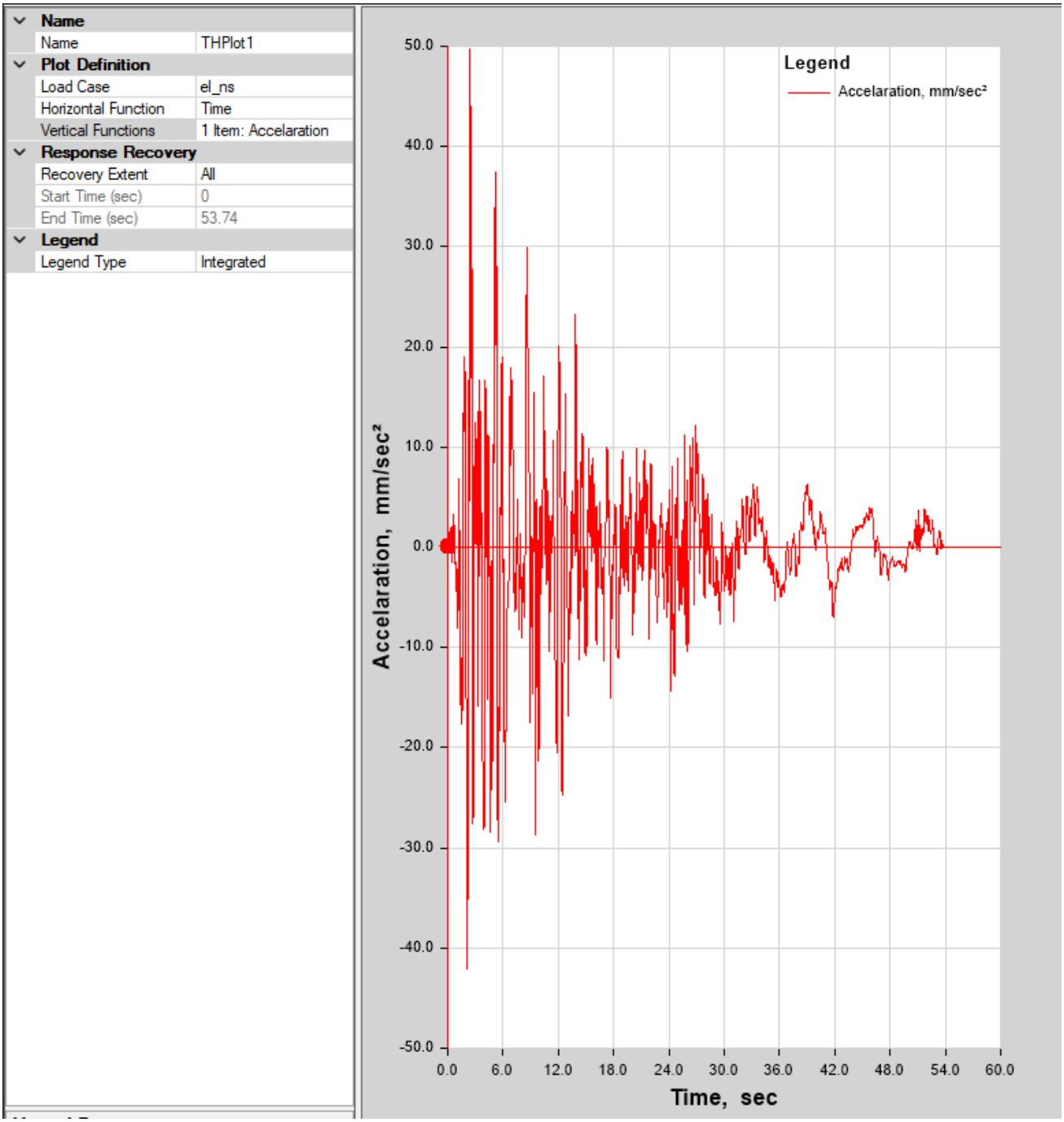


Fig: Acceleration

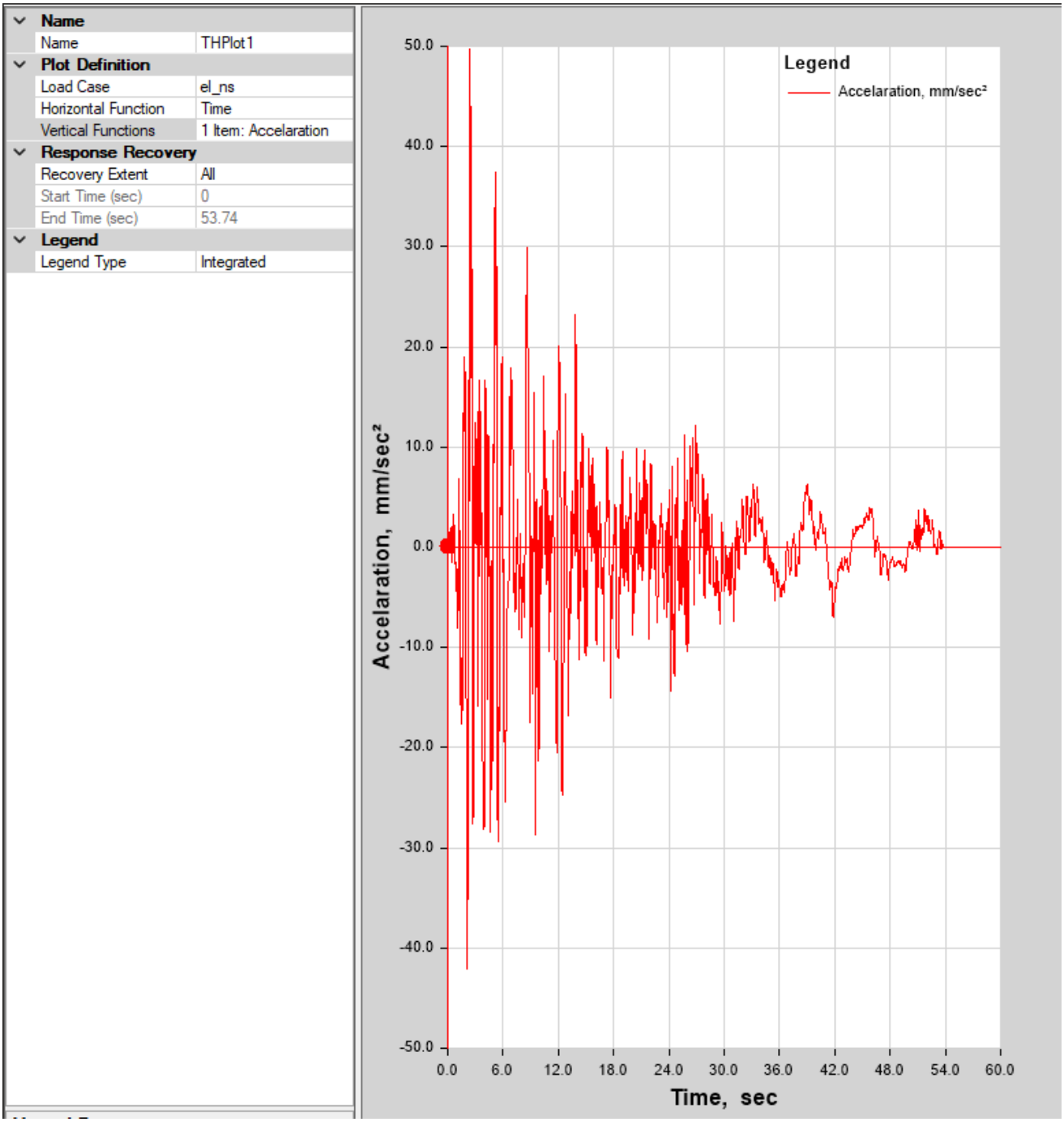


Fig: Velocity

Beam Detailing:

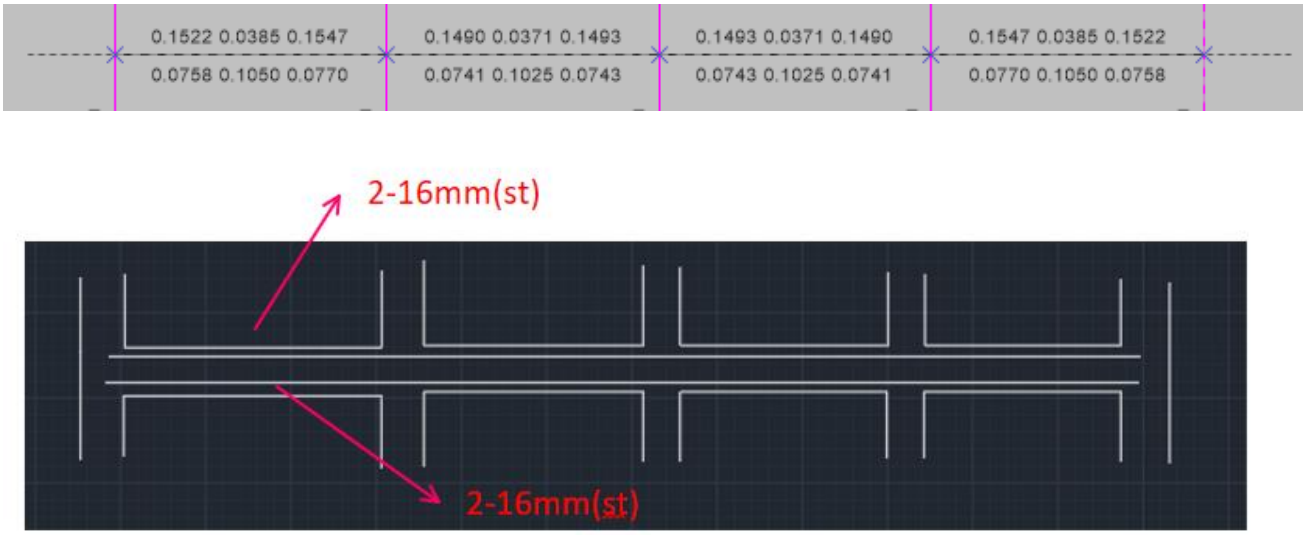


Fig:Elevation View D (7f B13,14,15,16)

Column Detailing: