

# Tips & Tricks of modelling in Midas Gen

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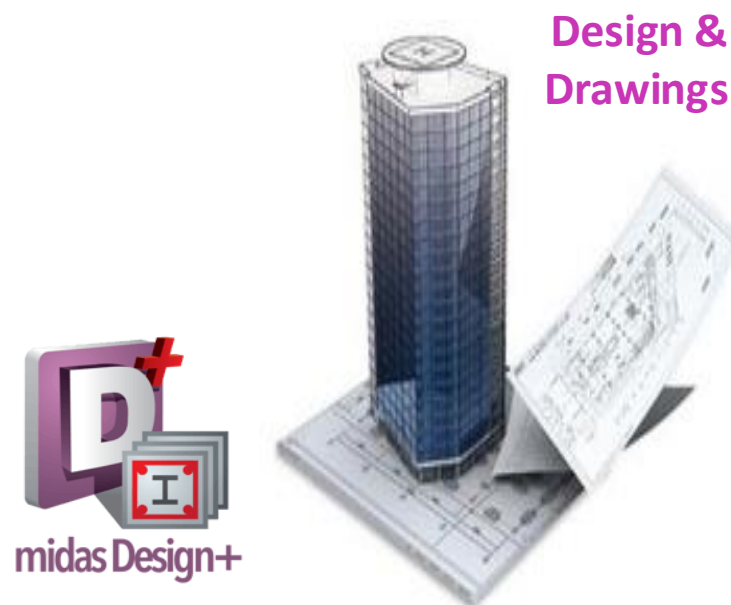
Technical Support Engineer



**Midas Gen**

One-stop solution for Building  
& General Structures

# Introduction

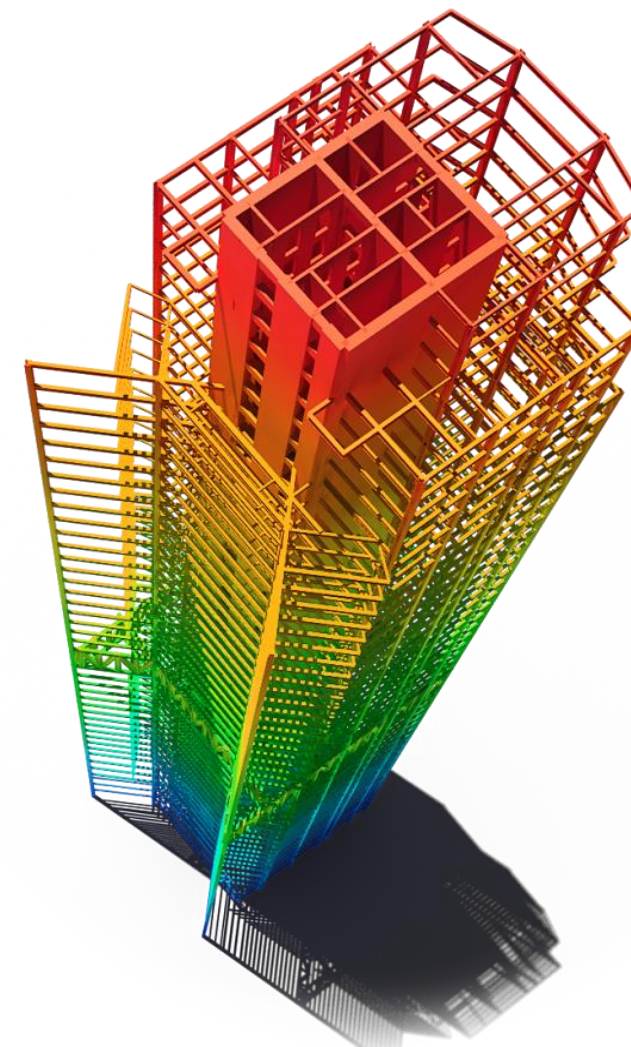


# Contents

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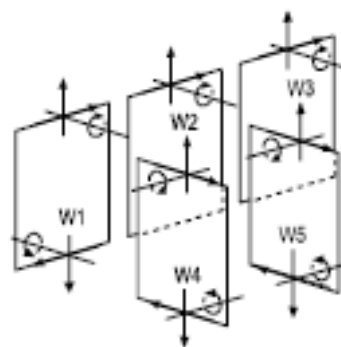


- Introduction
- Wall ID
- Pannel zone effects
- Plate modelling and results
- Modeling of Compression only springs for Mat/raft
- Design of inclined members
- Design + export

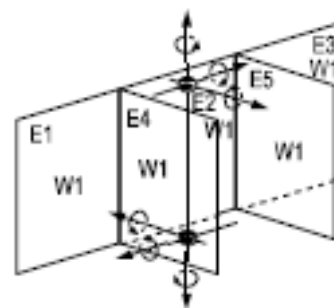


# Wall ID

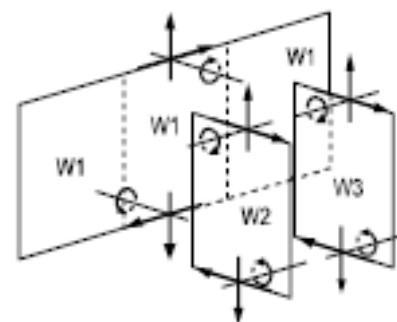
- Member forces of wall elements are produced for each story by wall IDs. If two or more wall elements at a given floor are numbered with a same wall ID, they are recognized as a single wall structure and each element force is combined together for the force output.



(c) Different wall IDs are assigned to each element



(d) Same wall ID is assigned to all elements



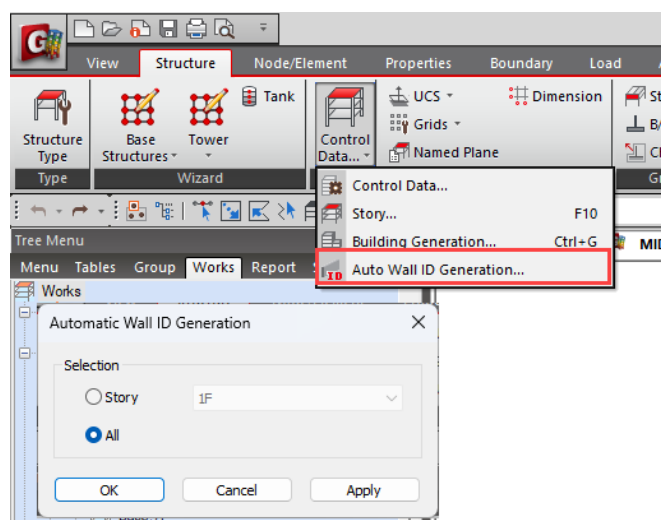
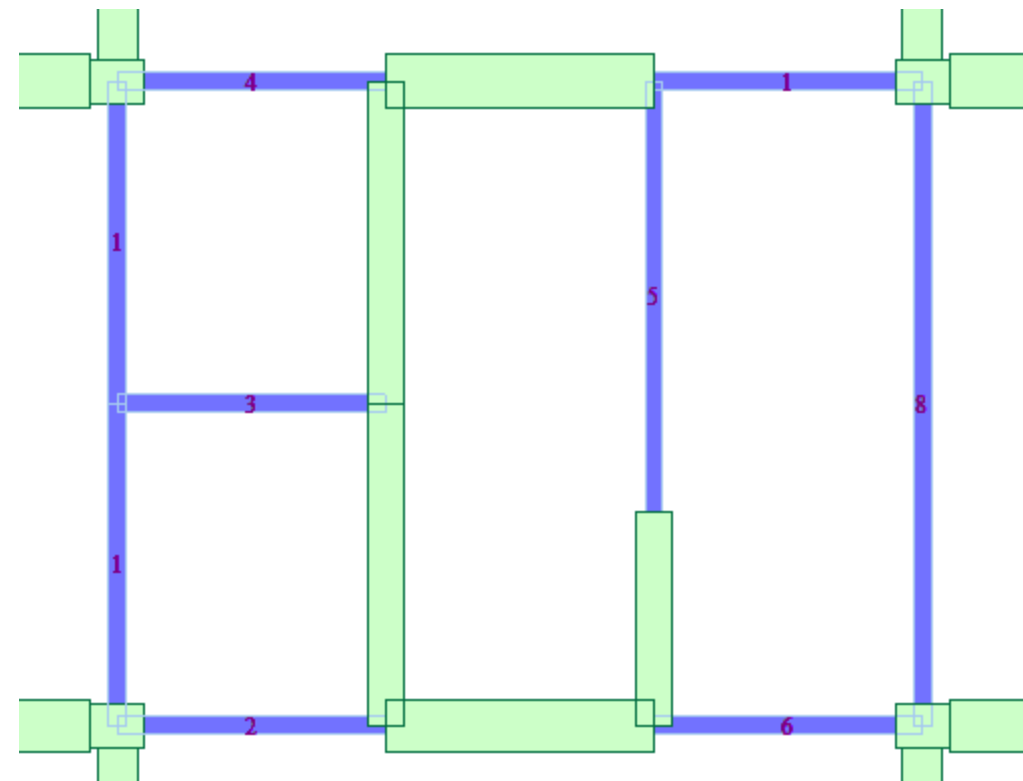
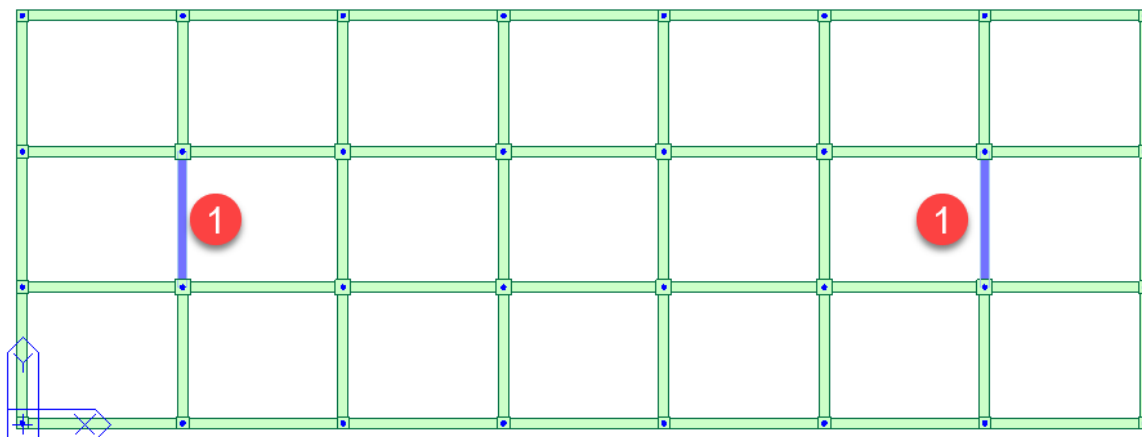
(e) W1 is assigned to Wall elements E1, E2 & E3. E4 and E5 are assigned with W2 and W3 respectively.





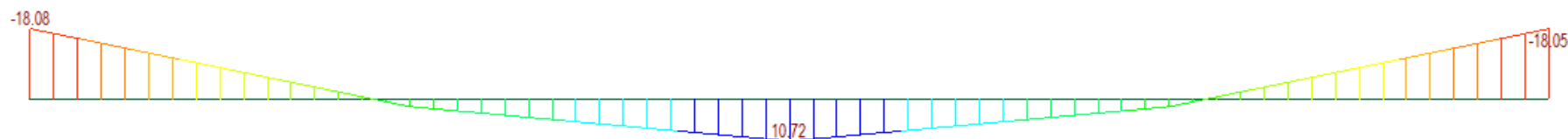
# Wall ID

## ➤ Common Mistake



# Panel Zone Effect

- Automatically consider the stiffness effects of the Panel Zone where column members and girder members (horizontal elements connected to columns) of steel structures are connected.



Panel Zone Effects

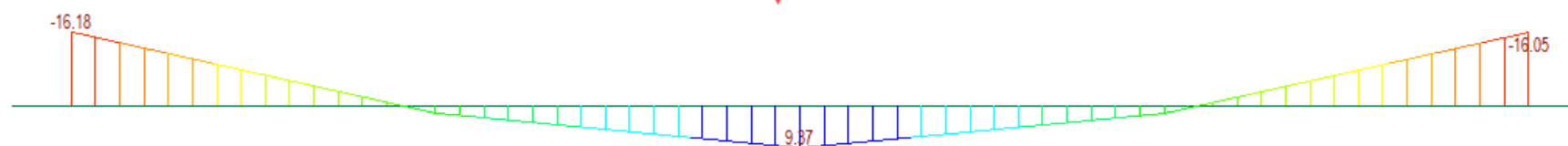
☒ Auto Calculate Panel Zone Offset Distances

Offset Factor : 1

Output Position : ☒ Panel Zone ☐ Offset Position

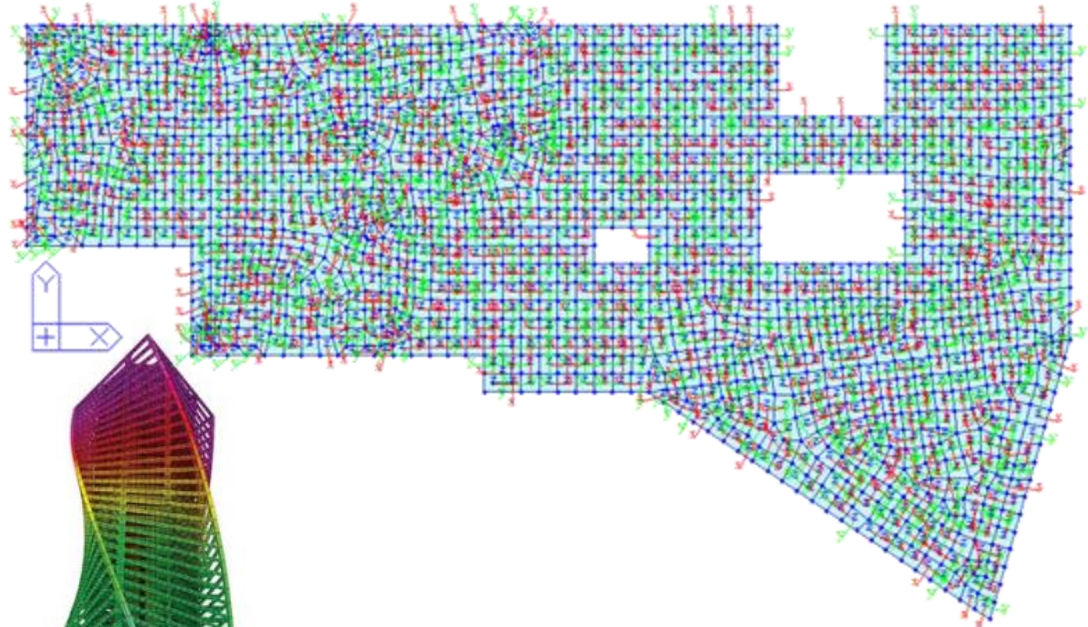
☐ Do not Calculate

OK Cancel



# Plate Modelling and Results

## ➤ Plate element local axis arrangement issue



Node Element Boundary Mass Load

Change Element Parameters

☐ Start Number

Node Number : 5108

Element Number : 2396

Parameter Type

☐ Material ID

☐ Section ID

☐ Thickness ID

☐ Wall ID

☒ Element Local Axis

☐ Element Type

☐ Reverse Element Local

☐ Align Element Local

Mode

Element Type Planar

☒ Assign

☐ Beta Angle ☐ Ref. Point

☐ Ref. Vector

Beta Angle : 0 [Deg]

☒ Coordinate Dir.

Local Axis

☒ Local-x ☐ Local-y

Direction

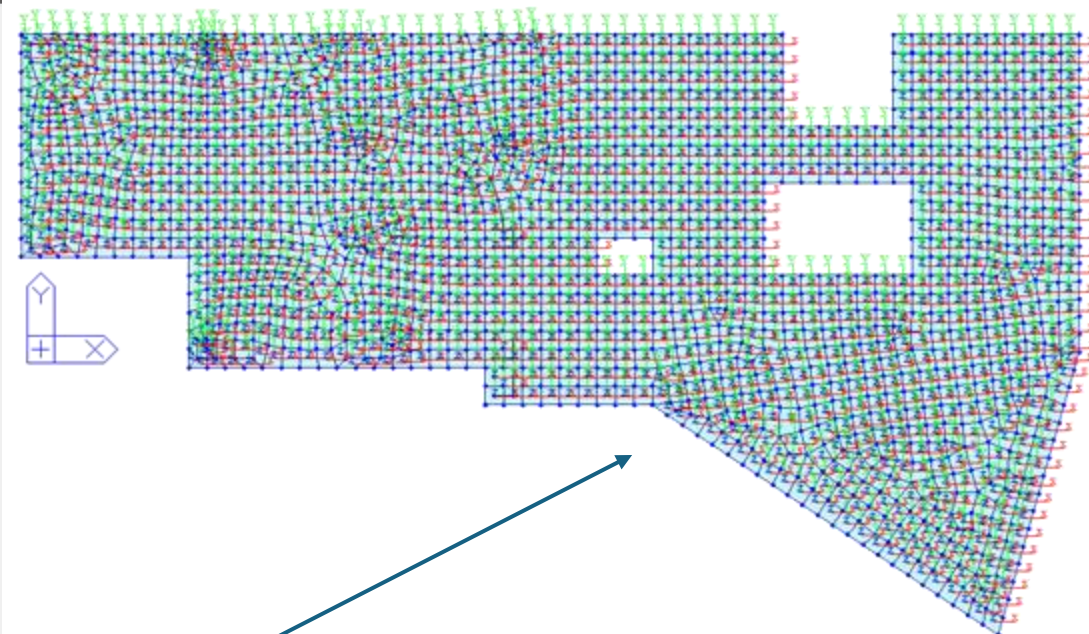
Coordinate Dir. +X

Origin Point

Change

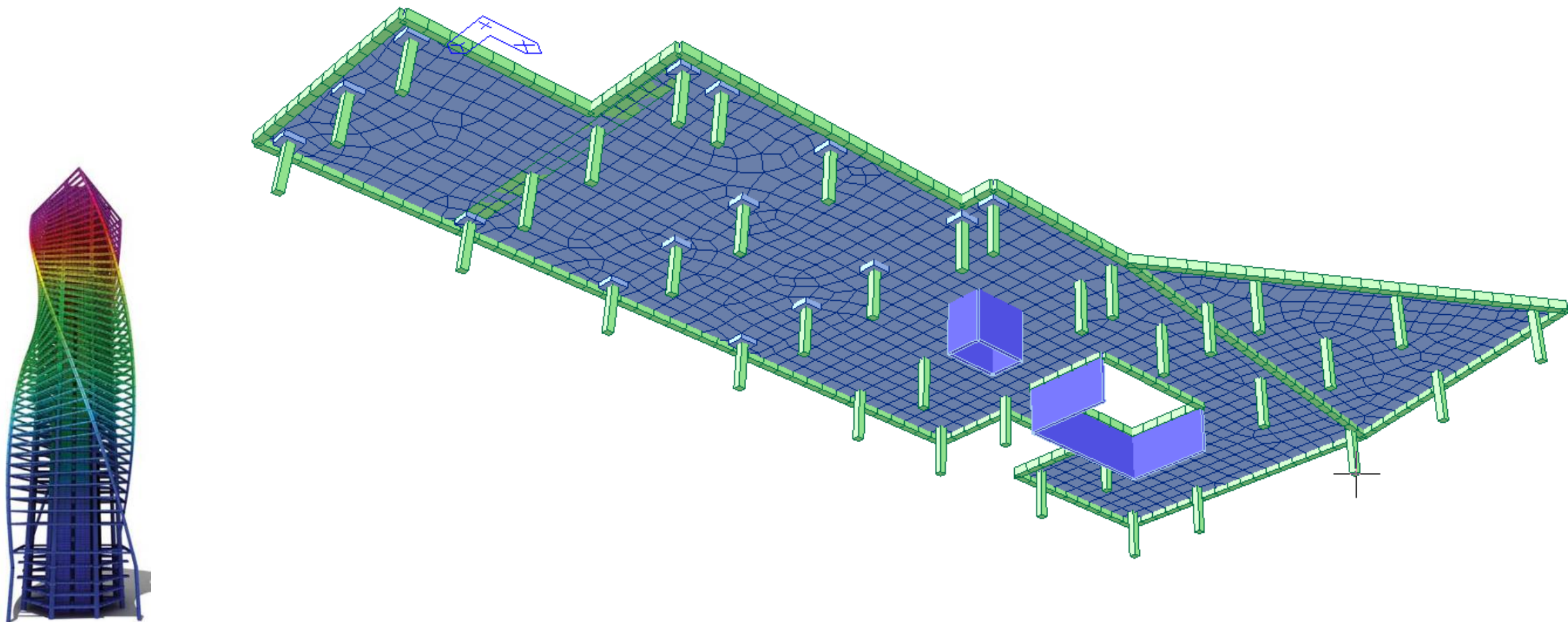
Angle Increment : 0 [Deg]

Apply Close



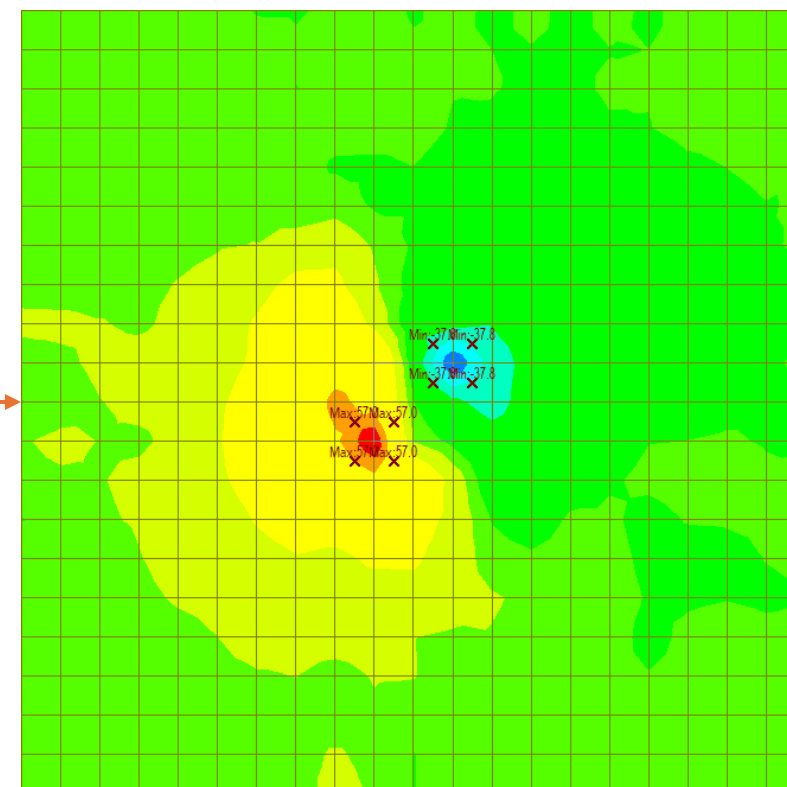
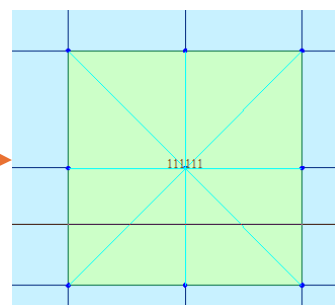
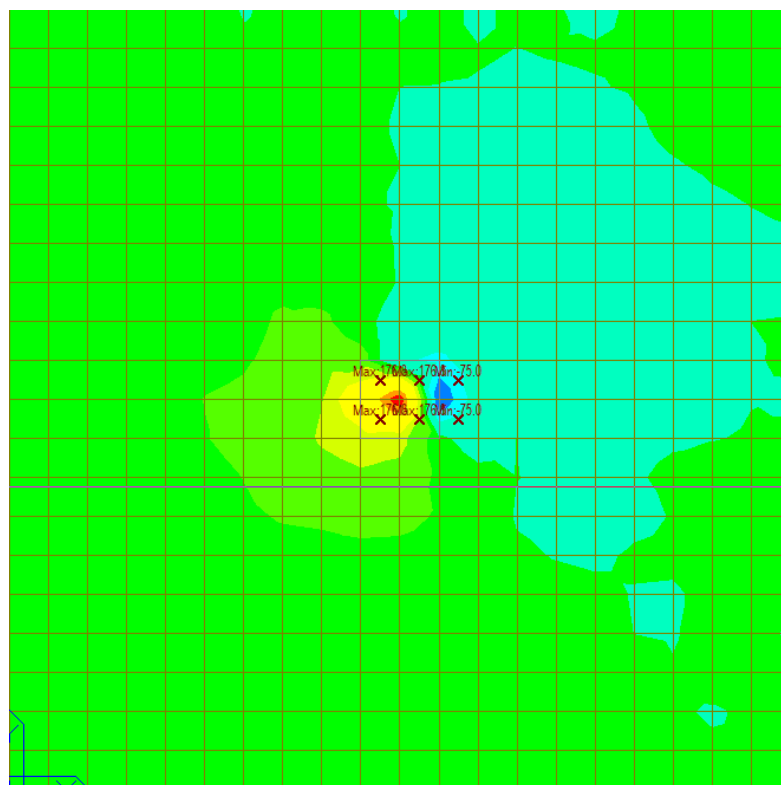
## Plate Modelling and Results

- *Modelling of Flat slabs having opening, column capitals and Drop panels*



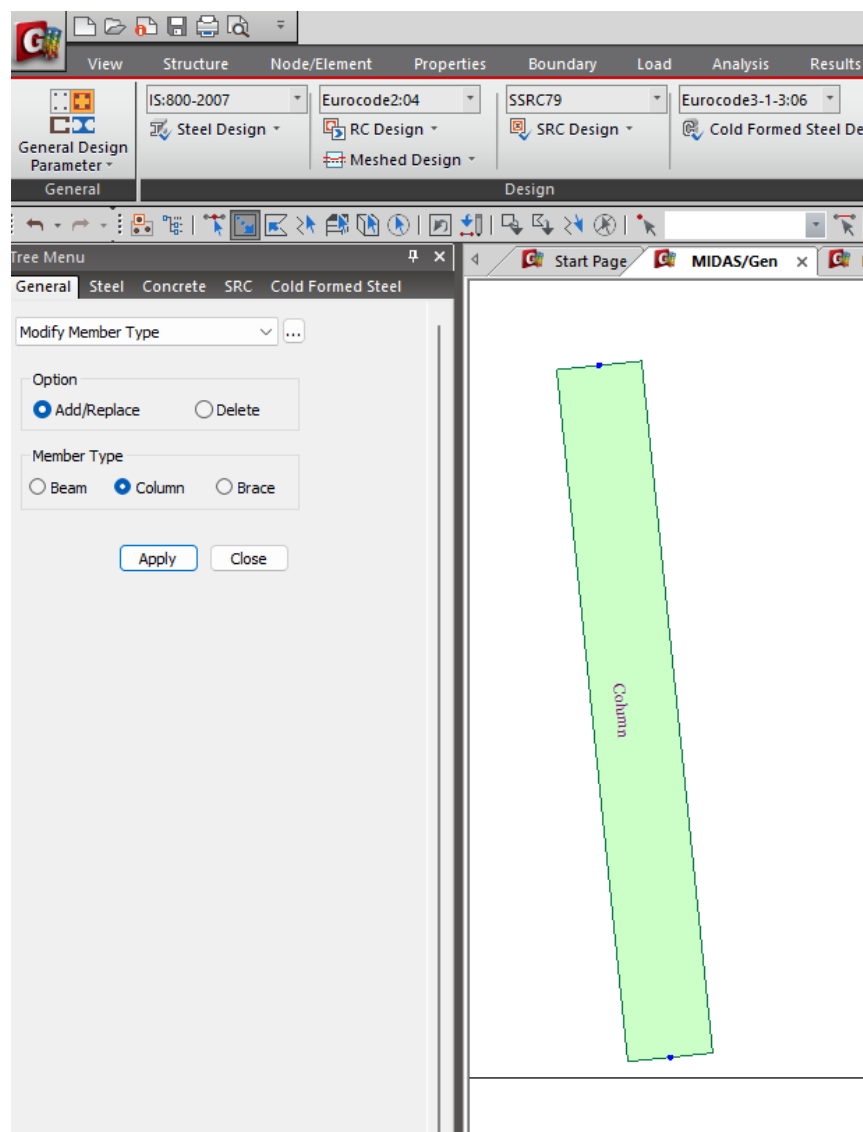
# Plate Modelling and Results

- *Results comparison of plates With and without Rigid links around the columns*





## Design of Inclined Members



# Underground Seismic loads



Building Control

☒ Use Ground Level  
Ground Level : 2 m

☒ Consider Underground Seismic Loads  
Bedrock Level : 0 m

☐ Consider Mass below Bedrock Level for Eigenvalue Analysis

☒ Story Shear Force Ratio

☒ Consider Wind and Seismic Loads for Flexible Floors

☒ Eccentricity Ratio

Story Center (Mass/Load)

☒ Use Mass ☐ Use Axial Force ☐ Use Shear Force

Story Stiffness Center

X-Directional Load Case : WX ...

Y-Directional Load Case : WY ...

☒ Story Response of Time History Results

☐ Story Center

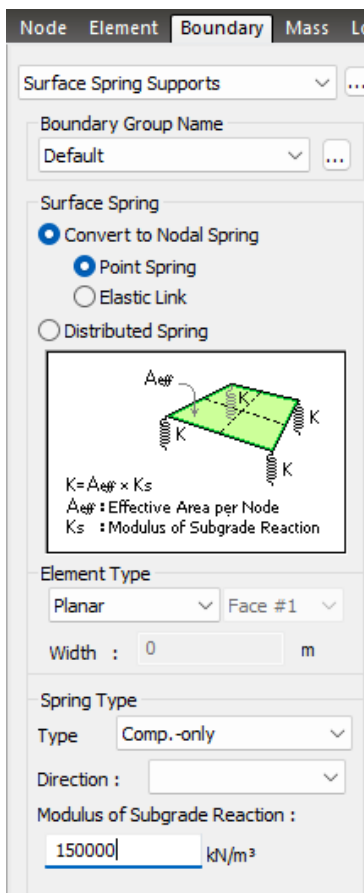
☒ Story Average

☒ Story Drift by Maximum of Vertical Elements

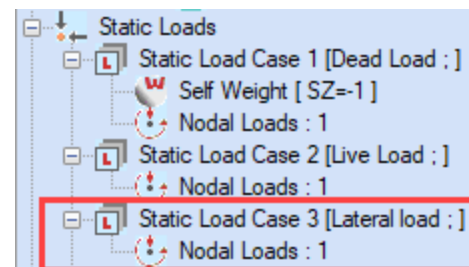
OK Cancel

# Modeling of compression-only Springs for Mat/Raft

- Q1: So many warnings are there in the analysis when I am assigning a compression-only springs in footings.



```
WARNING : DISPLACEMENT RX AT NODE NO. 4 IS ABNORMAL.
WARNING : DISPLACEMENT RY AT NODE NO. 4 IS ABNORMAL.
WARNING : DISPLACEMENT RX AT NODE NO. 5 IS ABNORMAL.
WARNING : DISPLACEMENT RY AT NODE NO. 5 IS ABNORMAL.
WARNING : DISPLACEMENT DZ AT NODE NO. 6 IS ABNORMAL.
WARNING : DISPLACEMENT RX AT NODE NO. 6 IS ABNORMAL.
WARNING : DISPLACEMENT RY AT NODE NO. 6 IS ABNORMAL.
WARNING : DISPLACEMENT DZ AT NODE NO. 7 IS ABNORMAL.
WARNING : DISPLACEMENT RX AT NODE NO. 7 IS ABNORMAL.
WARNING : DISPLACEMENT RY AT NODE NO. 7 IS ABNORMAL.
WARNING : DISPLACEMENT DZ AT NODE NO. 8 IS ABNORMAL.
WARNING : DISPLACEMENT RX AT NODE NO. 8 IS ABNORMAL.
WARNING : DISPLACEMENT RY AT NODE NO. 8 IS ABNORMAL.
WARNING : DISPLACEMENT DZ AT NODE NO. 9 IS ABNORMAL.
WARNING : DISPLACEMENT RX AT NODE NO. 9 IS ABNORMAL.
WARNING : DISPLACEMENT RY AT NODE NO. 9 IS ABNORMAL.
WARNING : DISPLACEMENT DZ AT NODE NO. 10 IS ABNORMAL.
WARNING : DISPLACEMENT RX AT NODE NO. 10 IS ABNORMAL.
```



- Loads assigned



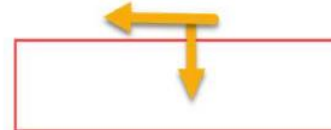
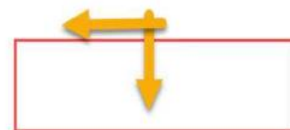
spring support

linear spring

compression only spring


foundation

sub grade reaction expected



# Modeling of compression-only Springs for Mat/Raft

## ➤ Correct way of applying the Loads cases



**1** **Using Load Combinations**

**2** **Selected Combinations**

**3** **Apply**

**4** **Static Load Case 4 [Ntest ;]**

Here you can see the new load cases have been generated considering the load combinations

**Load Combinations**

General | Steel Design | Concrete Design | SRC Design | Cold Formed Steel Design | Footing Design | Aluminum Design

Load Combination List

No	Name	Active	Type	Description
1	test	Active	Add	
*				

Load Cases and Factors

LoadCase	Factor
Dead Load(ST)	1.0000
Live Load(ST)	1.0000
Lateral load(ST)	1.0000
*	

Select Loads

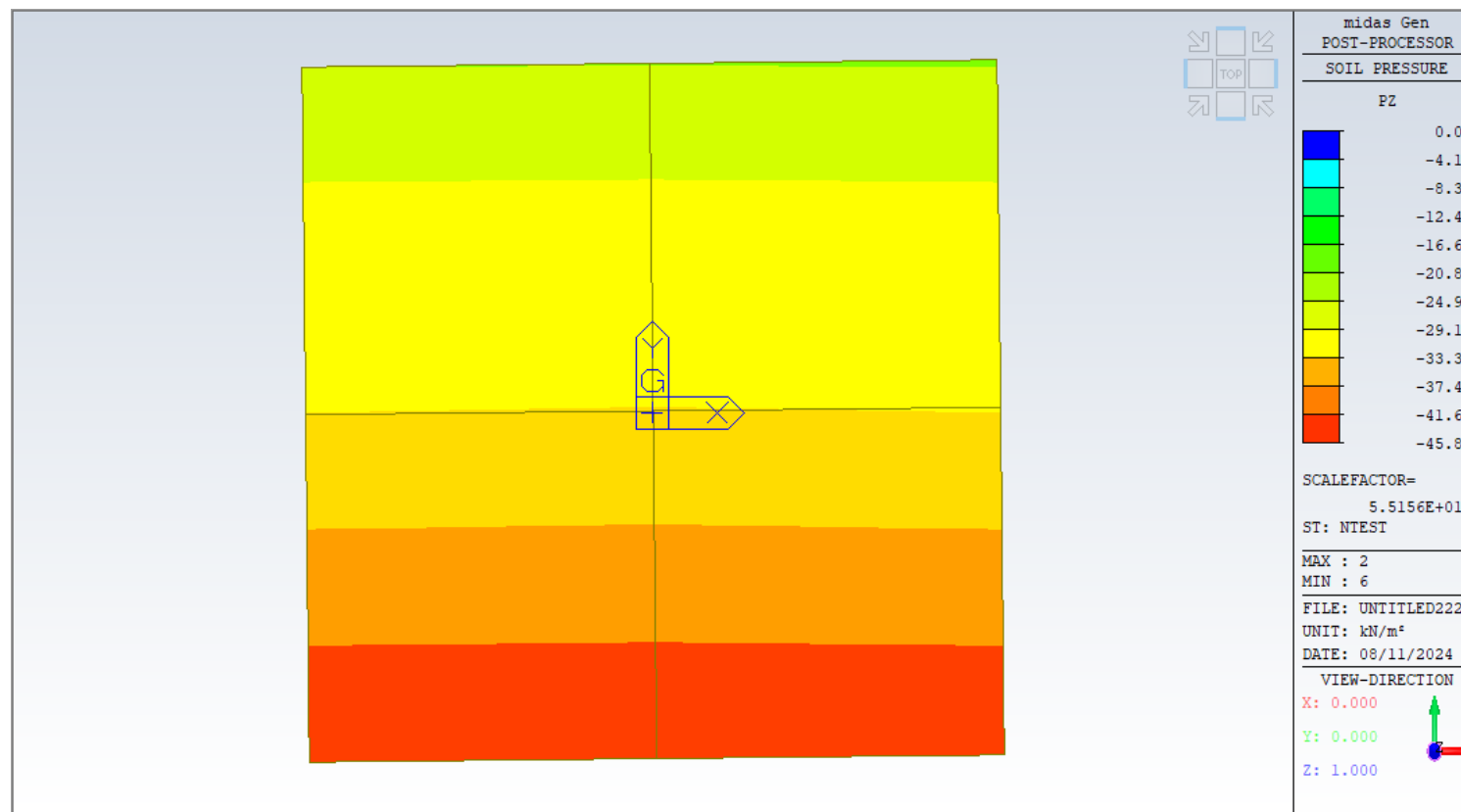
- ☒ Self Weight
- ☒ Nodal Body Force
- ☒ Nodal Load
- ☒ Specified Displacement
- ☒ Beam Load
- ☒ Floor Load
- ☒ Finishing Material Load
- ☒ Pressure Load
- ☒ Plane Load
- ☒ System Temperature
- ☒ Nodal Temperature
- ☒ Element Temperature
- ☒ Temperature Gradient
- ☒ Beam Section Temperature
- ☒ Prestress Load
- ☒ Pretension Load
- ☒ Tendon Prestress Load
- ☒ Wind Load
- ☒ Seismic Load

File Name: D:\KPI\Uplift in footing\Untitled222.lcp

# Modeling of compression-only Springs for Mat/Raft

- Soil pressure checks for Compression-only springs

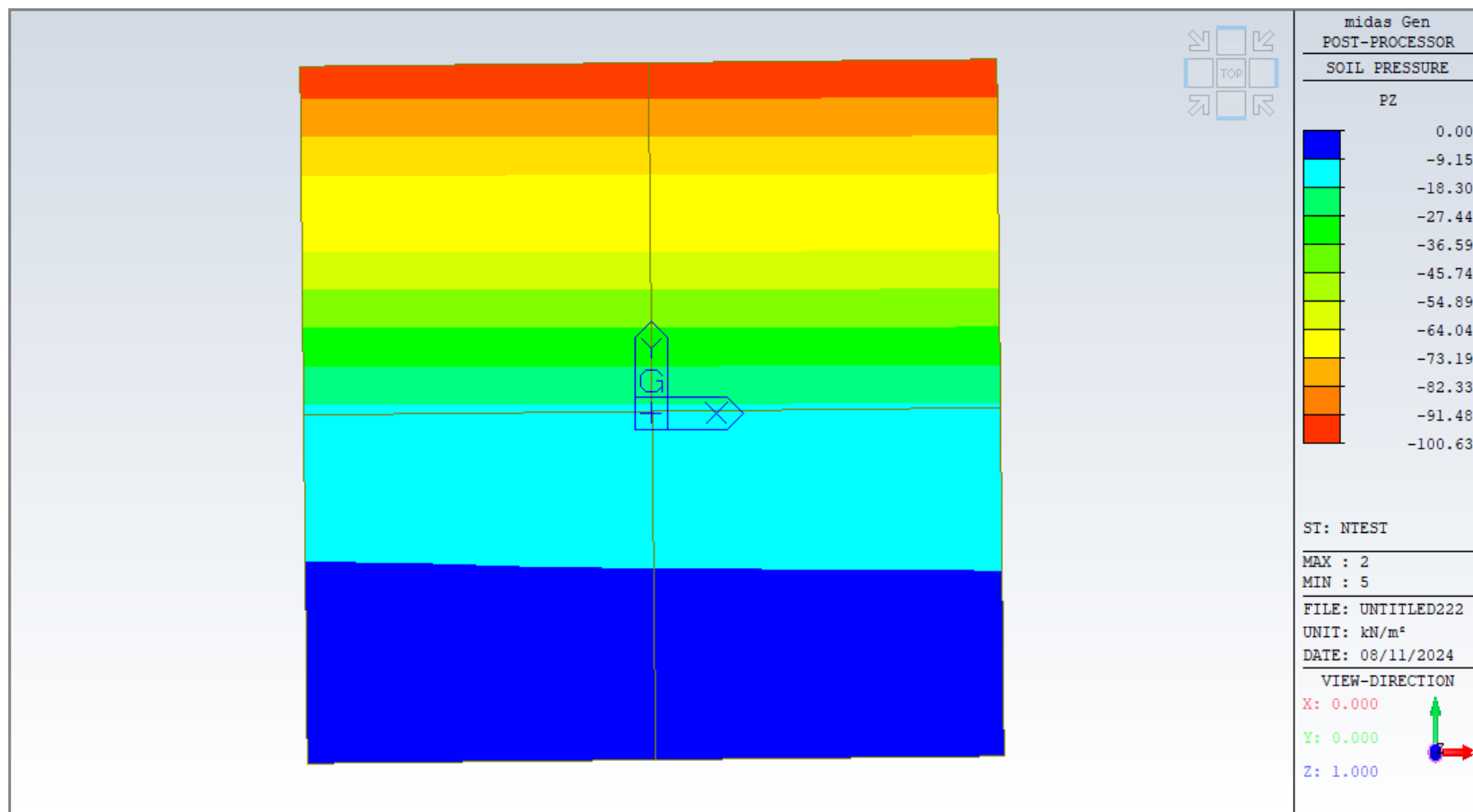
No Uplift condition



# Modeling of compression-only Springs for Mat/Raft

- *Soil pressure checks for Compression-only springs*

*Uplift condition*



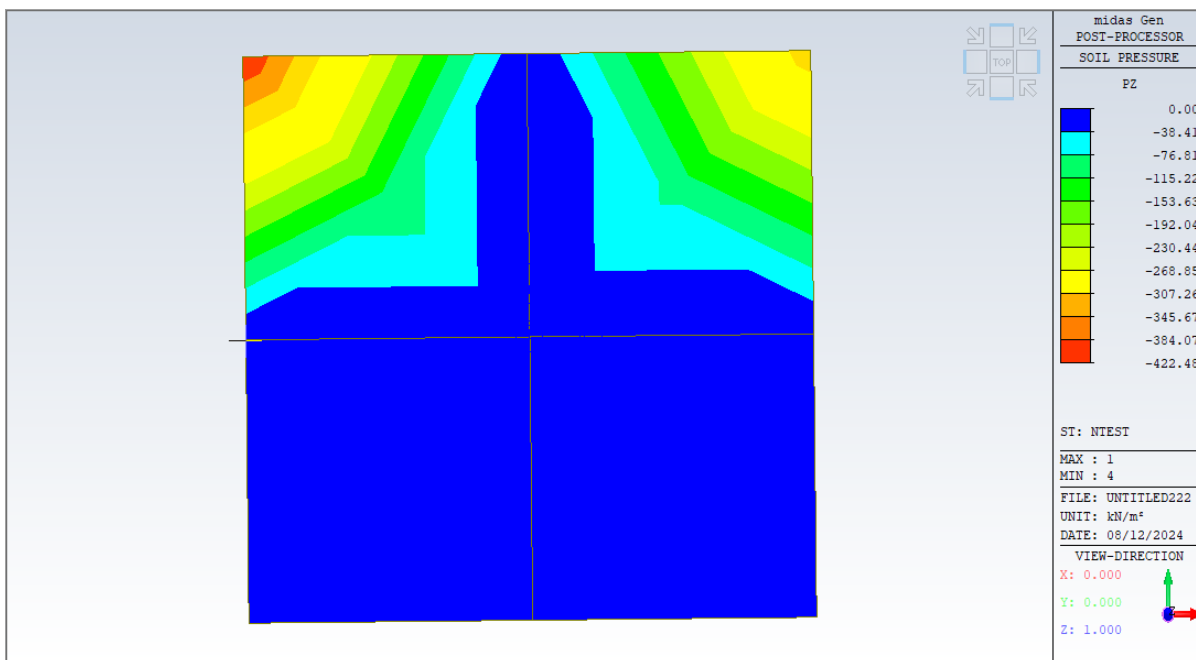
# Modeling of compression-only Springs for Mat/Raft

## ➤ Soil pressure checks for Compression-only springs

### Overturn condition

```

ITERATIVE STATIC ANALYSIS CONVERGENCE INFORMATION
-----
LOADCASE :      3  HAS NOT SATISFIED CONVERGENCE TOLERANCE.  PLEASE CHECK WINDOWS MESSAGE.
LOADCASE :      4  HAS NOT SATISFIED CONVERGENCE TOLERANCE.  PLEASE CHECK WINDOWS MESSAGE.
-----
                SOLUTION TERMINATED
YOUR MIDAS JOB IS SUCCESSFULLY COMPLETED.....D:\KPI\Uplift in footing\Untitled222
TOTAL SOLUTION TIME.:      1.47 [SEC]
    
```



# Midas Design+ Export (Gen)

## ➤ Export function and optimization in Design+

Link Option

Down Link | Up Link | Memb. ( Down Link ) | Memb. ( Up Link )

RC

Link Type by Member

☒ Apply Link Option by Member

☒ Link by Section  
☐ Link by Member

☒ Consider Material Additionally

Load Combination Type

by All Load Combination  
by All Load Combination  
by Max / Min Forces ( All )  
by Max / Min Forces ( Selected )  
by Envelope

☒ Remove Duplicate Load Comb.

Force Type

Design Force of Column

Default OK Apply Cancel

Design Option

Ratio | Section | RC(1) | RC(2) | RC(3) | Shear Wall | Steel | SRC | Reinforce

Slab

☐ Change Section by Design  
☐ Max. Thick 1000.00 mm

Column

☐ Change Section by Design  
☐ Max. Width 2000.00 mm  
☐ Max. Height 2000.00 mm  
☐ Max. Rho 4.00 %

☐ Use Design Method of Gen/ADS

Basement Wall

☐ Change Section by Design  
☐ Max. Thick 1000.00 mm

☐ Apply Shear Reinforcement  
Rebar P10 ~ P16

Footing

☒ Change Section by Design  
☐ Max. Thick 2000.00 mm

Stair

☐ Change Section by Design  
☐ Max. Thick 500.00 mm

Corbel/Bracket

☐ Change Section by Design  
☐ Max. Width 2000.00 mm  
☐ Max. Height 2000.00 mm

Combined Footing

☐ Change Section by Design  
☐ Max. Thick 2000.00 mm

Default (All) OK Close

# Thank You

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Q & A

Contact us at

<https://support.midasuser.com/hc/en-us>

**-anmol@midasit.com**

