Release Note

Release Date : **July, 2018**

Product Ver. : **nGen 2019 v1.1**

Next Generation Software

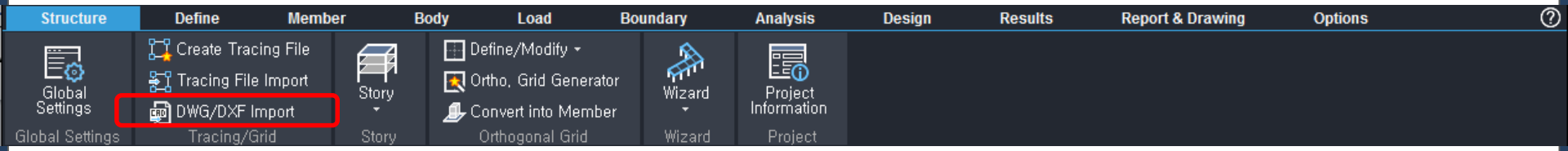
for Integrated Analysis, Design, Drawing of Building Systems

Index

1. Improvement for Import of CAD files

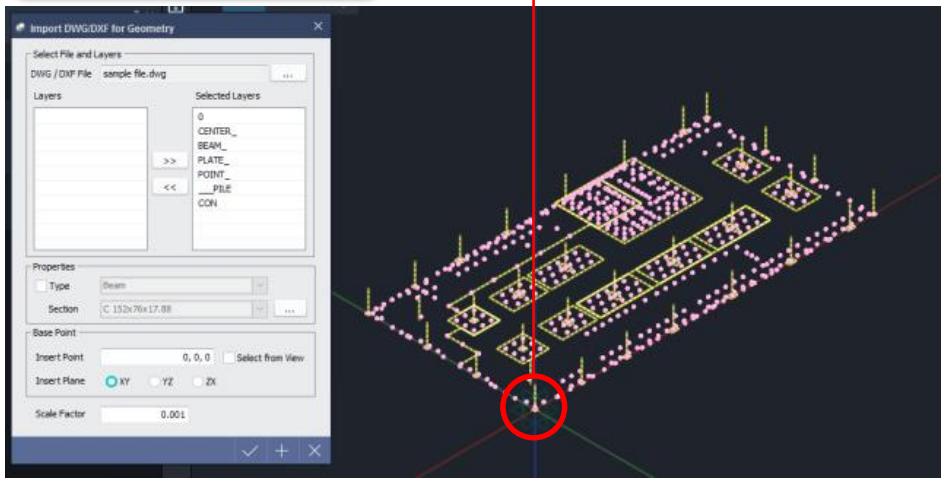
Add Point&2D Face in Importing

Structure > Tracing/Grid > DWG/DXF Import

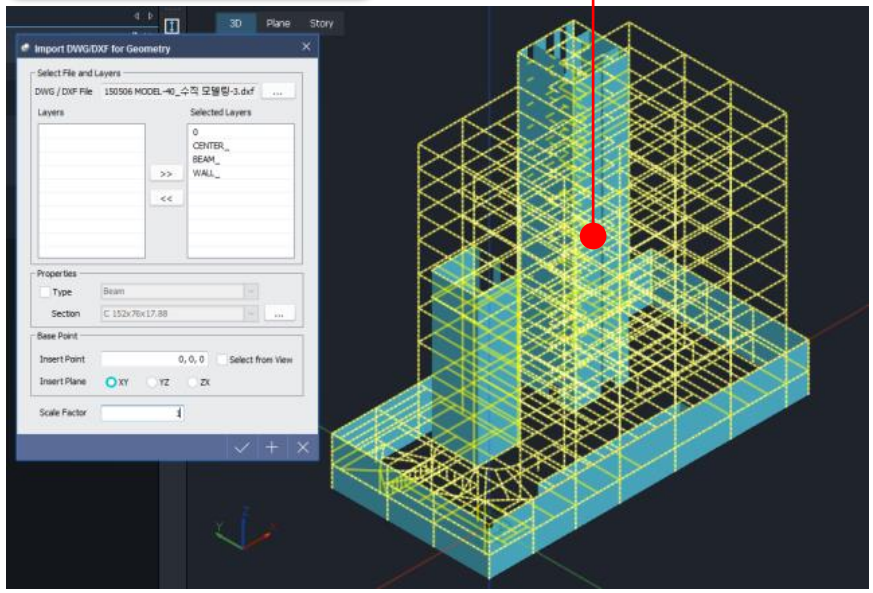


- In previous versions, only 1D line could be loaded..
- Support to import points and 2D area of Cad

Import points



Import 2D Faces

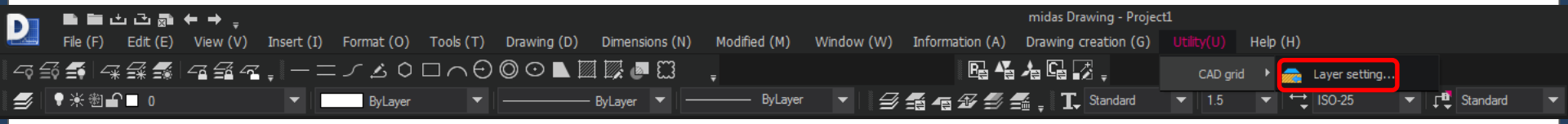


2. Improvement for Cad tracing

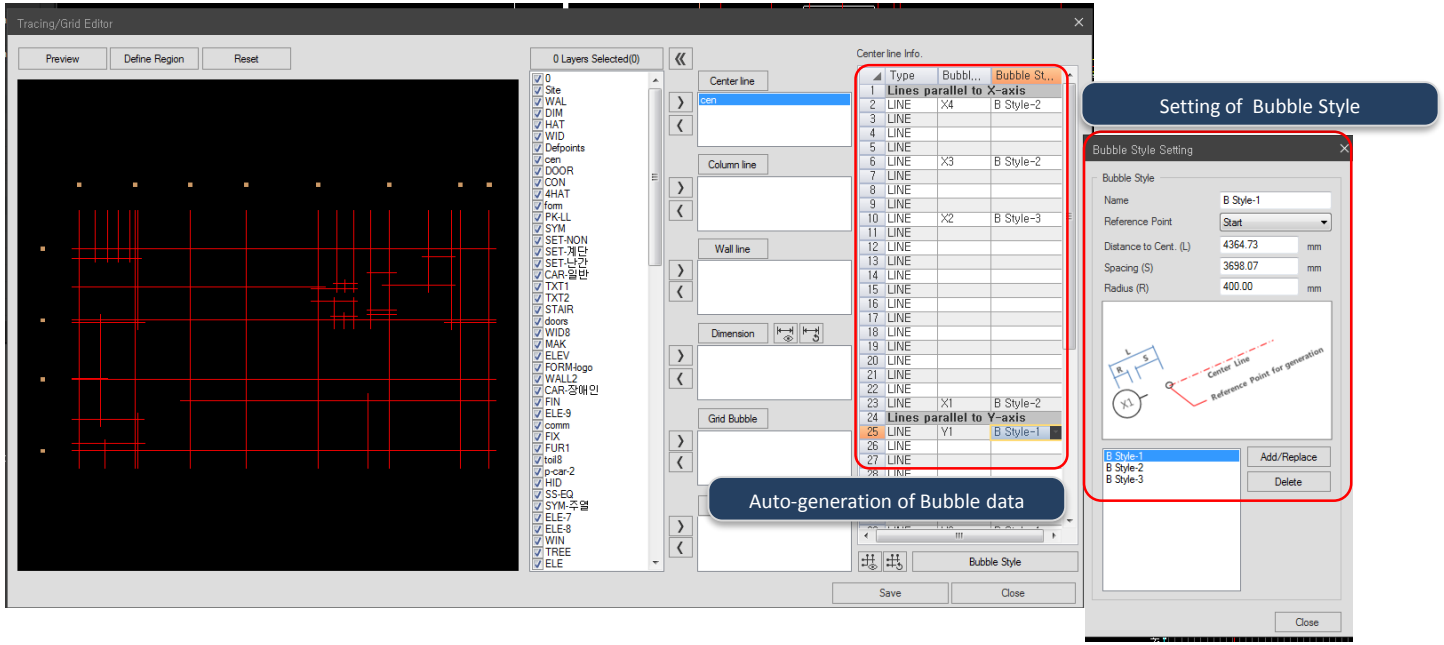
Improved Bubble feature in midas Drawing

nGen > Structure > Tracing/Grid > Create tracing file

Drawing > Utility > Cad Grid > Layer Setting



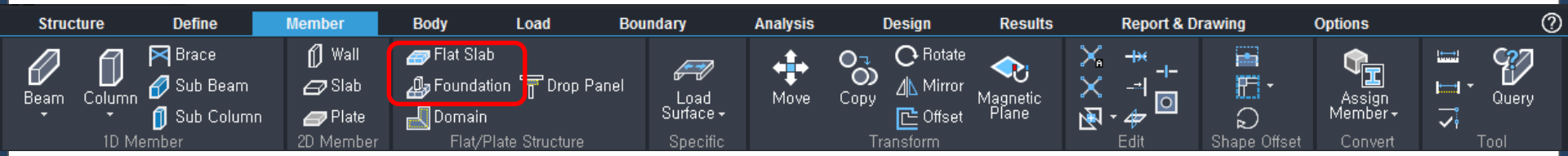
- Automatically recognize an axis line and create a table for center(axis) line Information.
- Support the user setting of bubble style



3. Add new Slab Type - 1

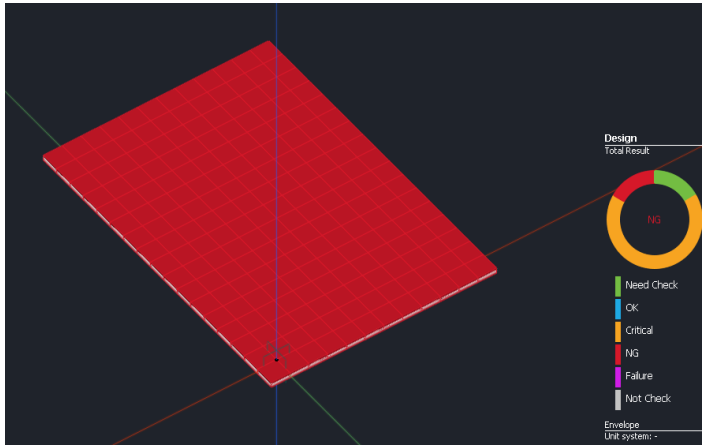
Add Flab Slab and Foundation type

nGen > Member > Flat/Plate Structure > Flat Slab or Foundation



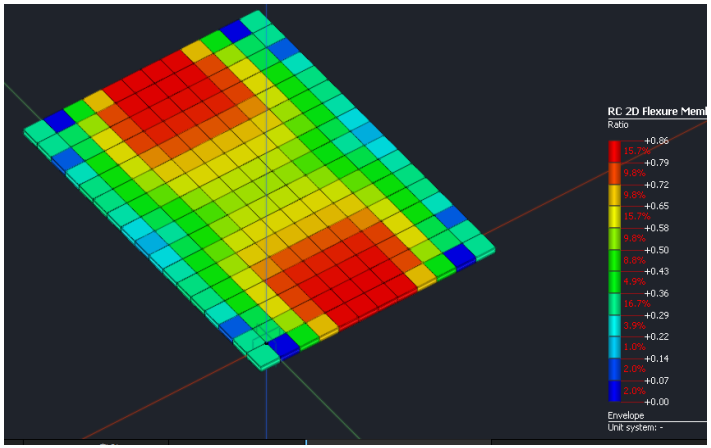
- Analysis element is Plate Type.
- Flat slab and Foundation are designed for each elements.
- The features of Domain / Drop panel / Column Capital / additional rebar are supported for Flat slab and Foundation .
- Support 2-way shear checking.

Slab



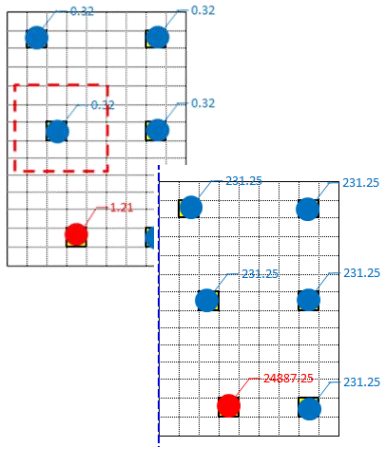
Design based on Member

Flat slab / foundation



Design based on Elements (design by each mesh unit)

Punching Check



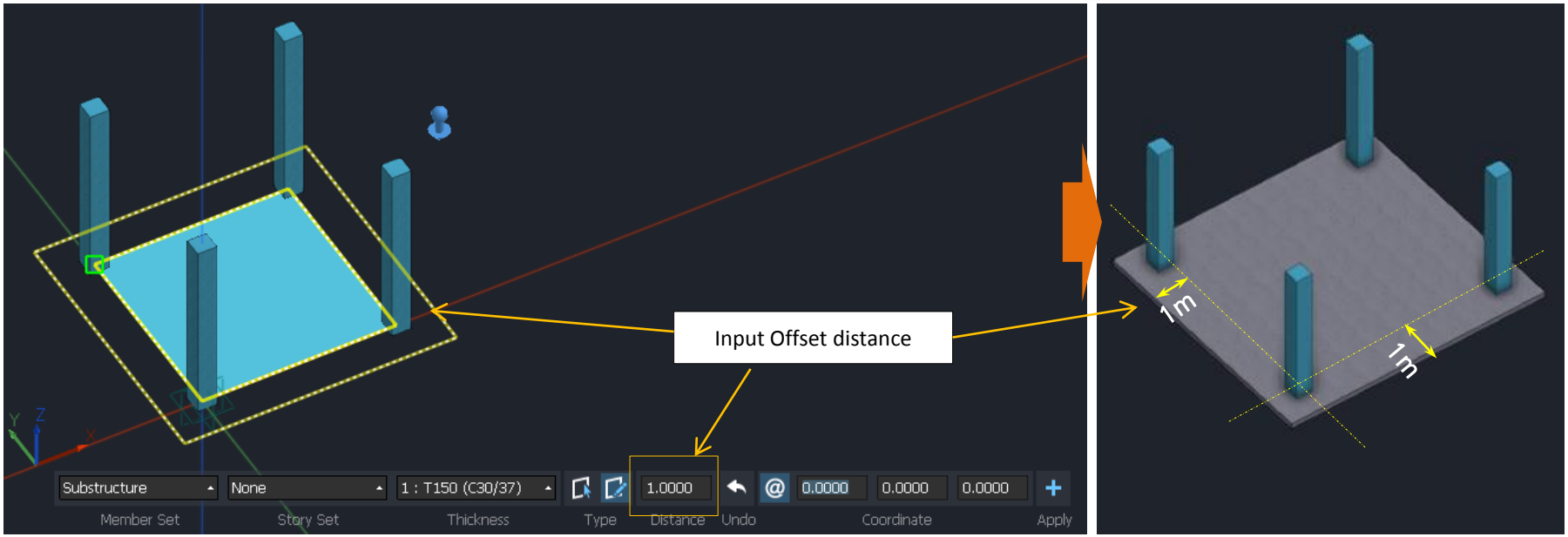
Design shear force & shear ratio

3. Add new Slab Type - 1

Add Foundation type

nGen > Member > Flat/Plate Structure > Foundation

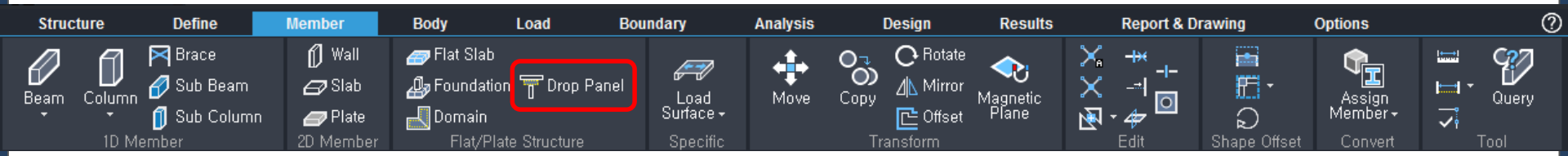
Foundation modeling according to Offset Distance



4. Add new Slab Type - 2

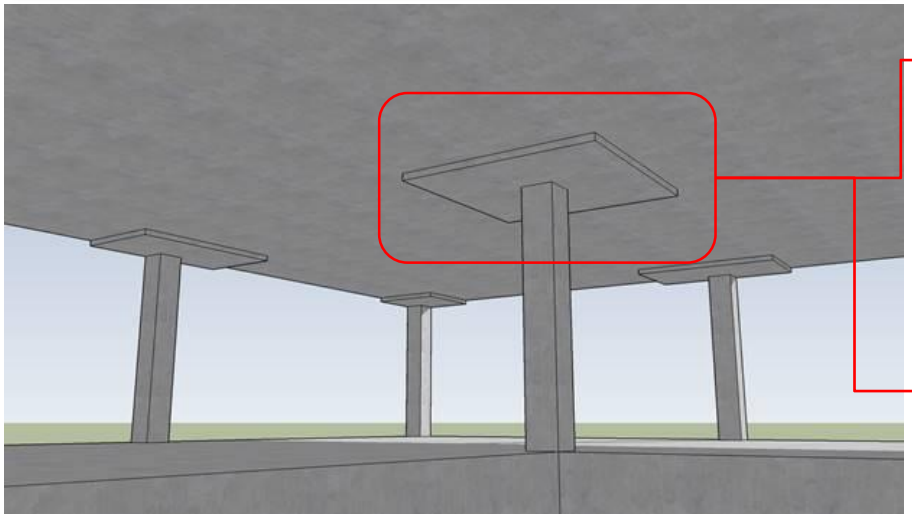
Add Drop panel

nGen > Member > Flat/Plate Structure > Drop Panel

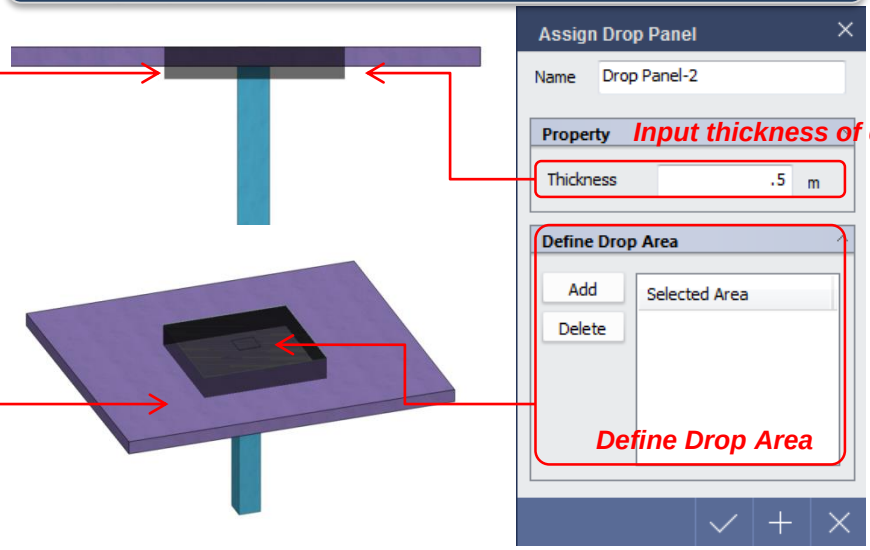


- Support a slab modeling with different thicknesses in customized areas

Drop Panel Shape



Modeling Shape of Drop Panel



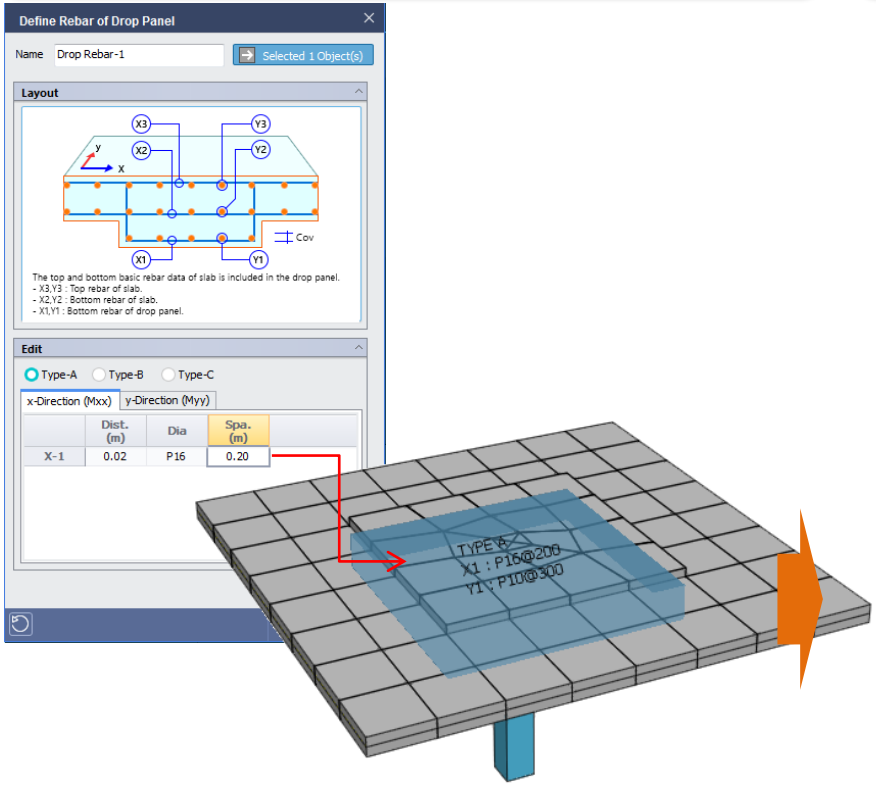
4. Add new Slab Type - 2

Add Drop panel

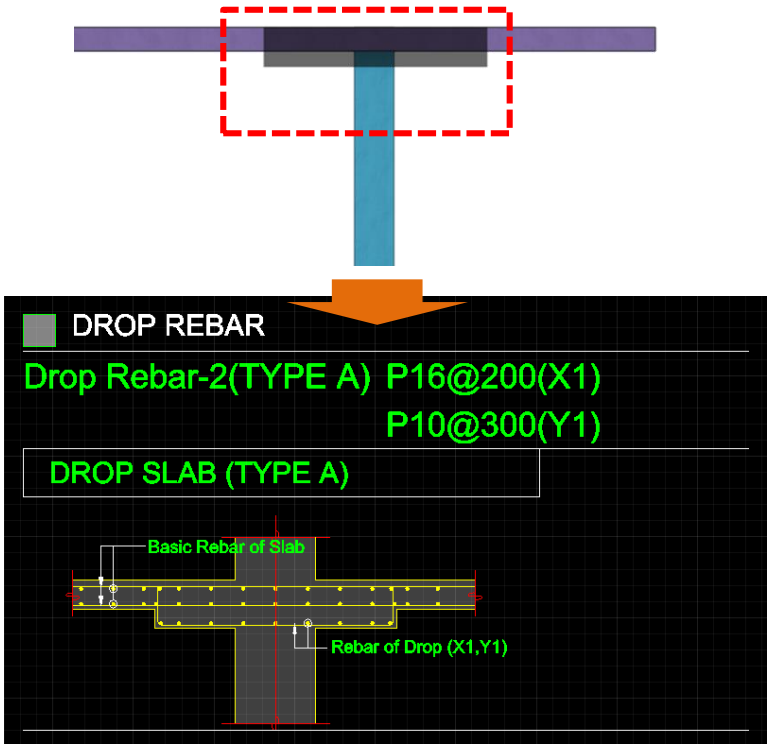
nGen > Member > Flat/Plate Structure > Drop Panel

- Support to enter the rebar arrangement of the drop panel
- Support to generate the detail drawing for the drop panel in midas Drawing

Rebar Arrangement



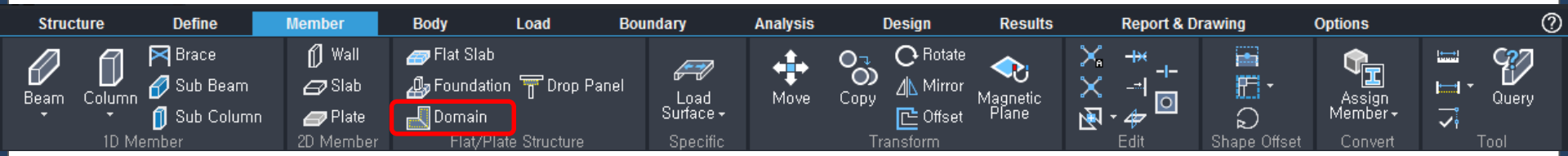
Drop Rebar Drawing



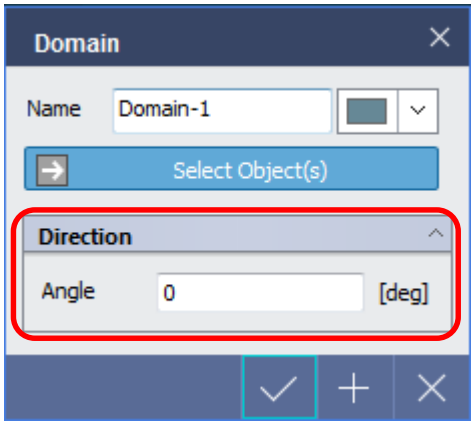
4. Add new Slab Type - 2

Add Domain

nGen > Member > Flat/Plate Structure > Domain

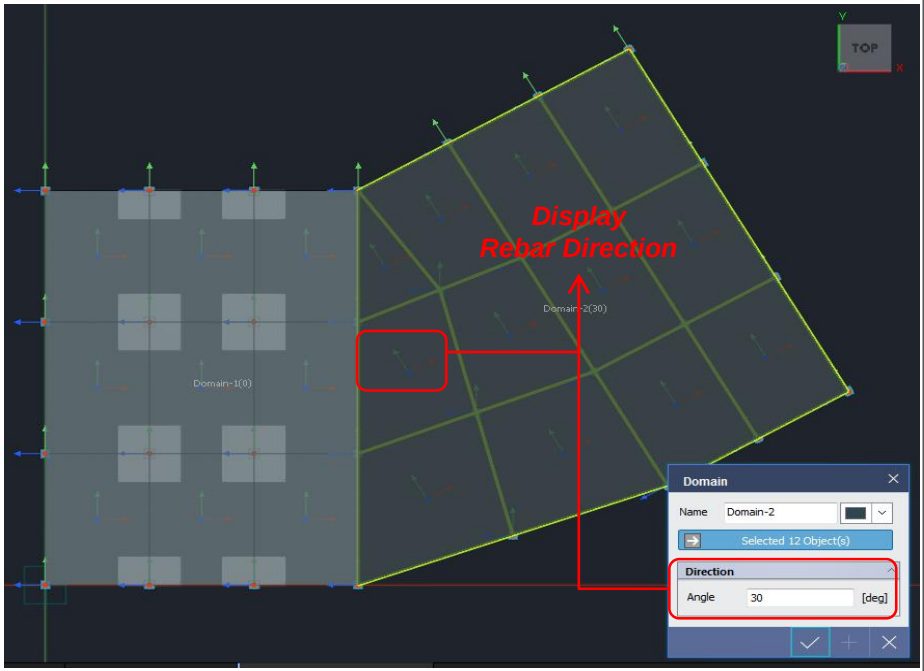


- the elements defined by the same domain must have the identical member Type.
- In Design, the members of same domain have the same rebar data.



- ***Input the direction of rebar.***
- ***Supporting flexural design considering wood-armer moment.***

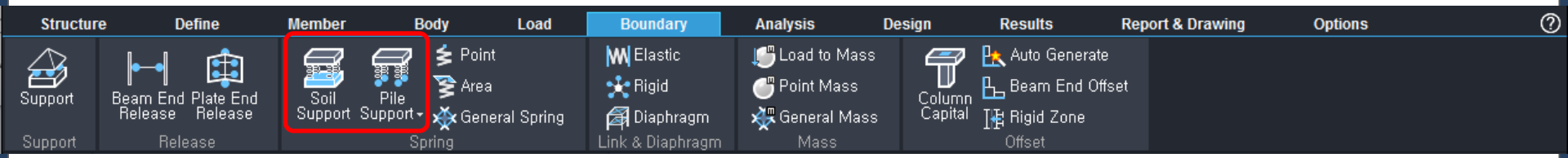
Application of Domain



5. Add new Boundary Condition - 1

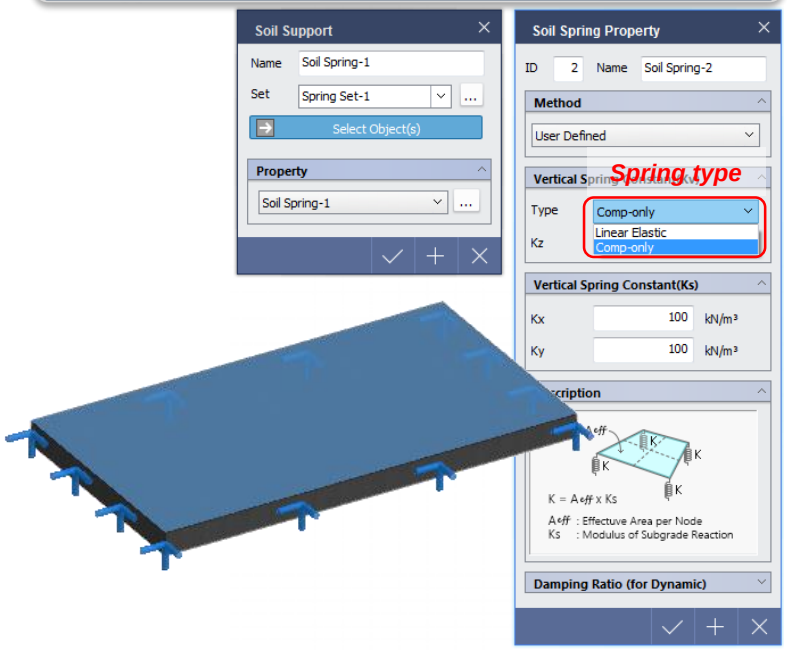
Add Soil Support & Pile Support

nGen > define > define property > Spring > Soil Support or Pile Support

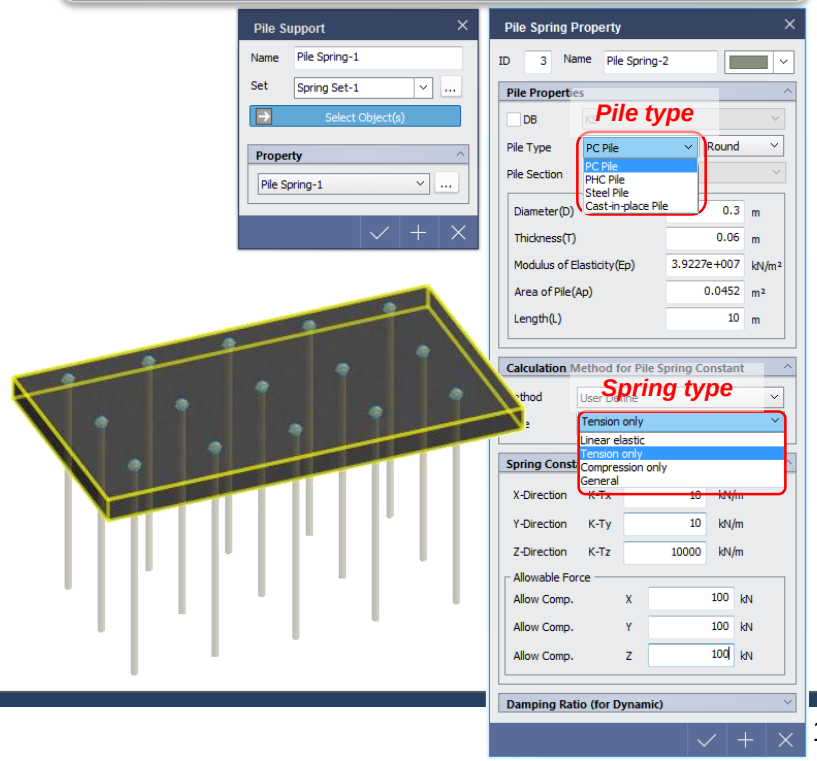


- Available spring types are Linear Elastic type, Tension Only type, and Compression Only type.
- Provide the results of subgrade stress and subgrade strain.

Soil Support



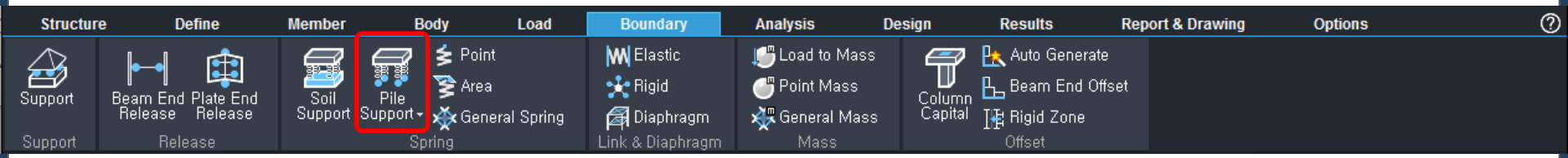
Pile Support



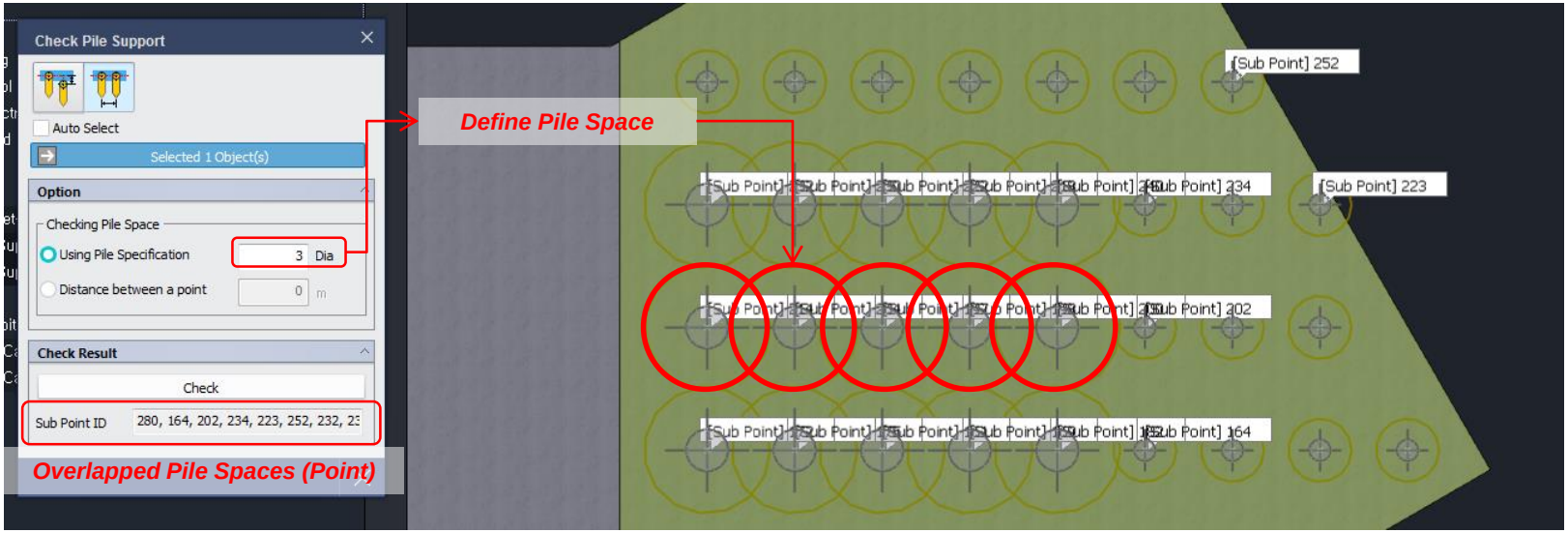
5. Add new Boundary Condition - 1

Add Soil Support & Pile Support

nGen > define > define property > Spring > Pile Support



- Check a overlapped pile spacing and Search a piles separated form foundation

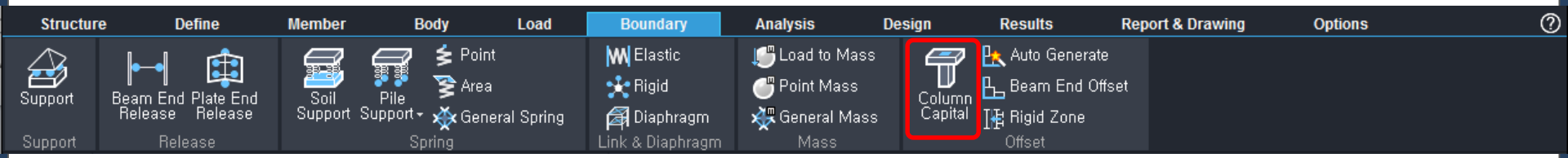


Checking Overlapped Pile Spacing

6. Add new Boundary Condition - 2

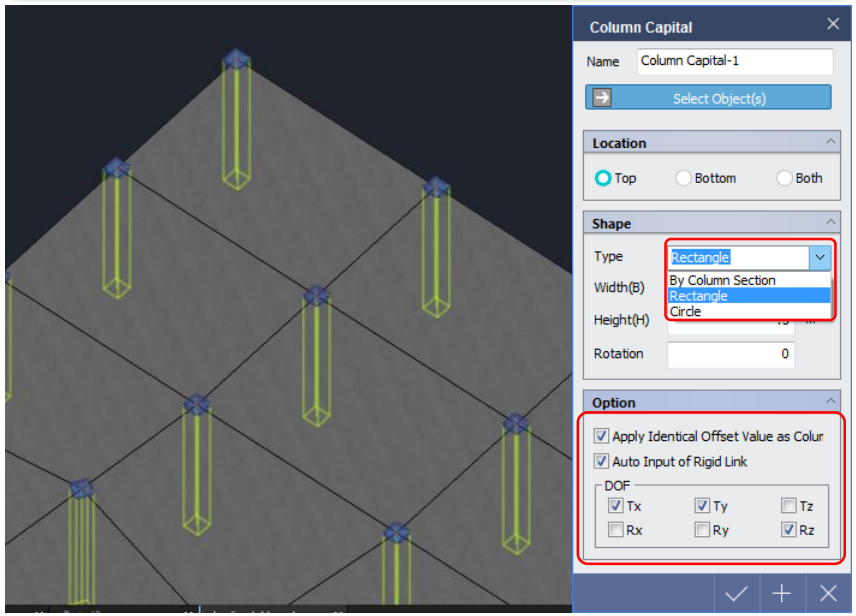
Add Column Capital

nGen > Boundary > Offset > Column Capital

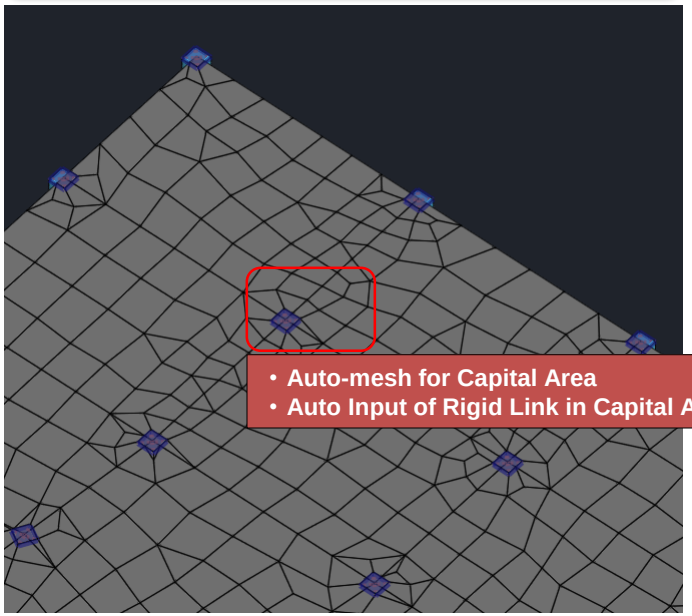


- Assign the column capital of columns(1D). Mesh will be automatically generated considering the edge line of the column cross section and Degree of freedom for Rigid link can be specified by the user.

Column Capital Input



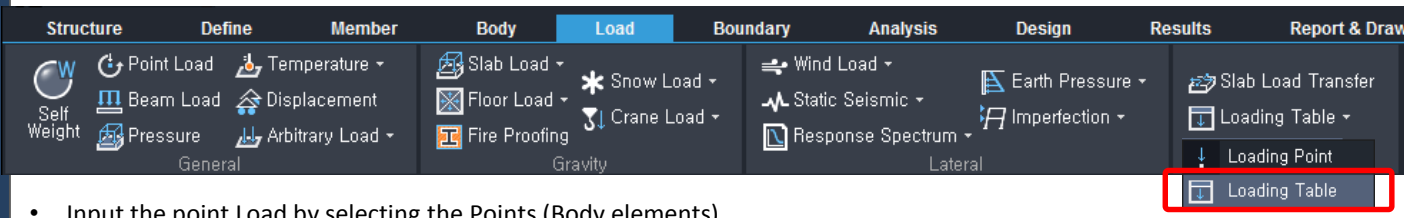
Mesh shape for Column Capital



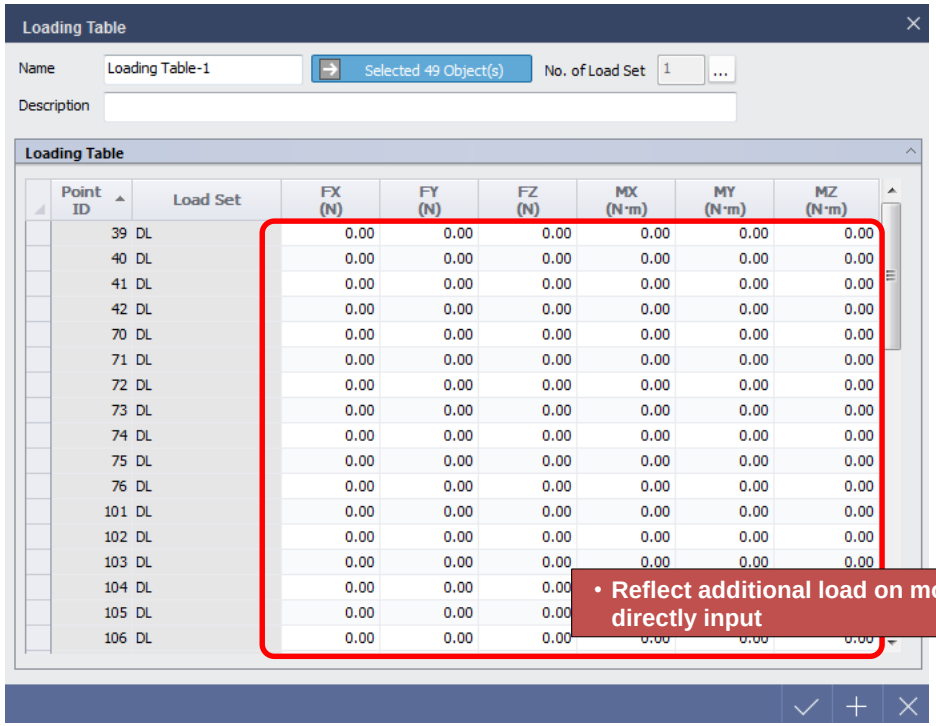
7. Add new Table

Add Loading Table

nGen > Load > specific > Loading Table



- Input the point Load by selecting the Points (Body elements)
- Check and edit the values of point Loads in Table.

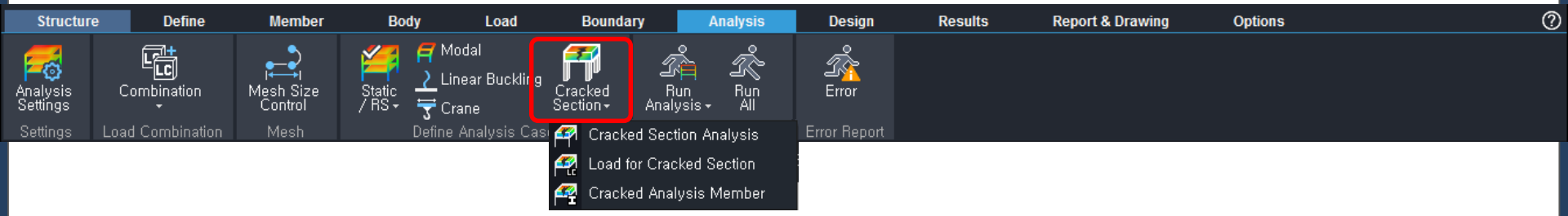


- **Reflect additional load on model when directly input**

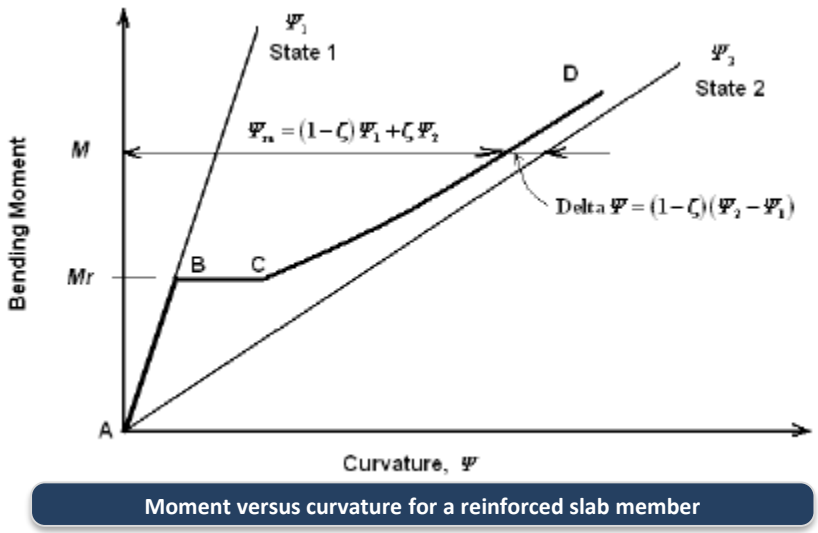
8. Add new Analysis Type

Add Cracked Section Analysis

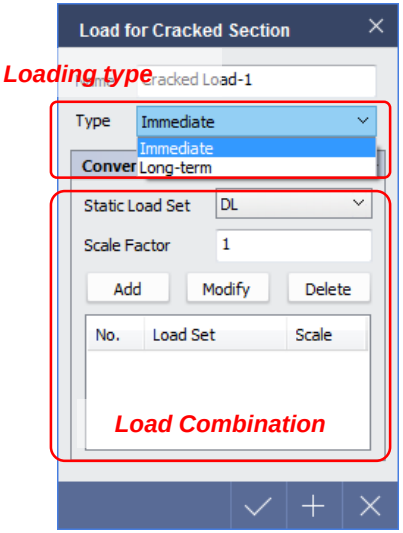
nGen > Ribbon menu > analysis > Define Analysis Case > Cracked Section

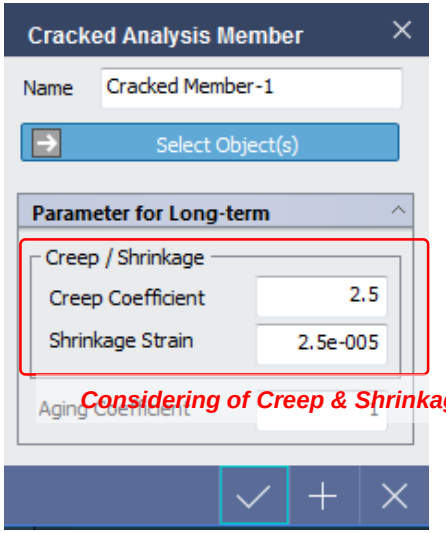


- Support to generate the load conditions for analysis considering cracked section.
- In case of long-term, consider the Parameters as creep, shrinkage, and aging.



Moment versus curvature for a reinforced slab member

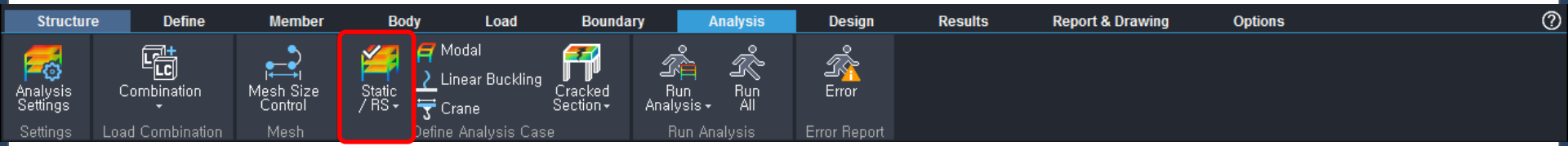


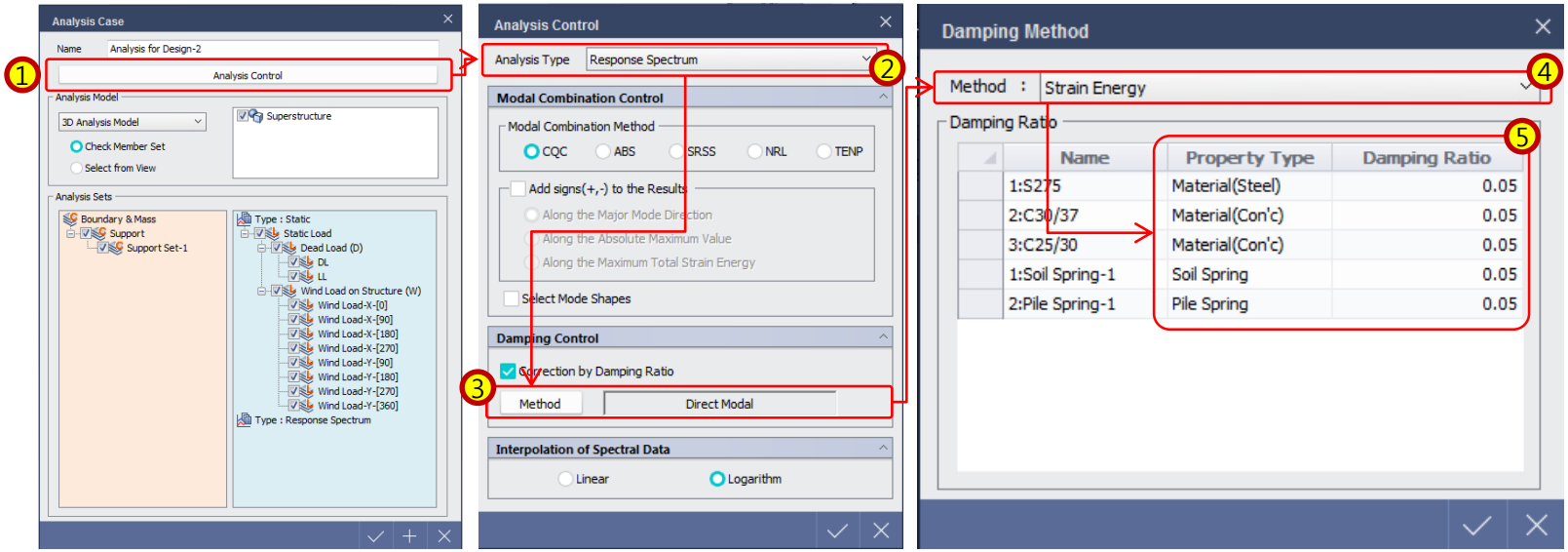


9. Improvement of seismic analysis

Input Modal damping Ratio per Properties

nGen > Ribbon menu > analysis > Define Analysis Case > Static/RS > Analysis control > RS





1) Click ‘Analysis Control’

2) Select ‘Response Spectrum’

3) Click ‘Method’

4) Select ‘Strain Energy’

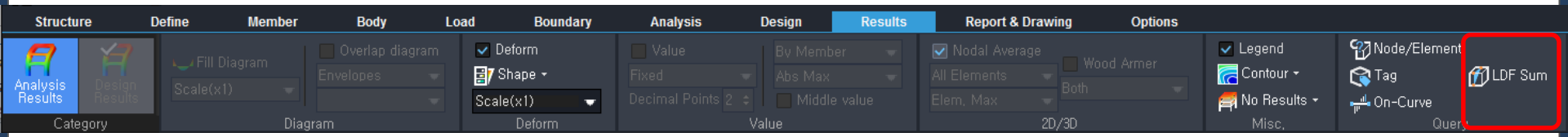
5) Input Damping Ratio per each properties

Operation Procedure

10. Improvement of Analysis Result for 2D elements

Add Local Direction force Sum

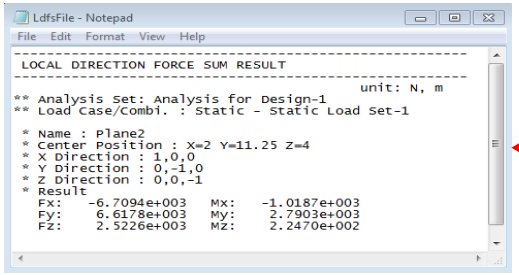
nGen > Ribbon menu > result > query > LDFSum

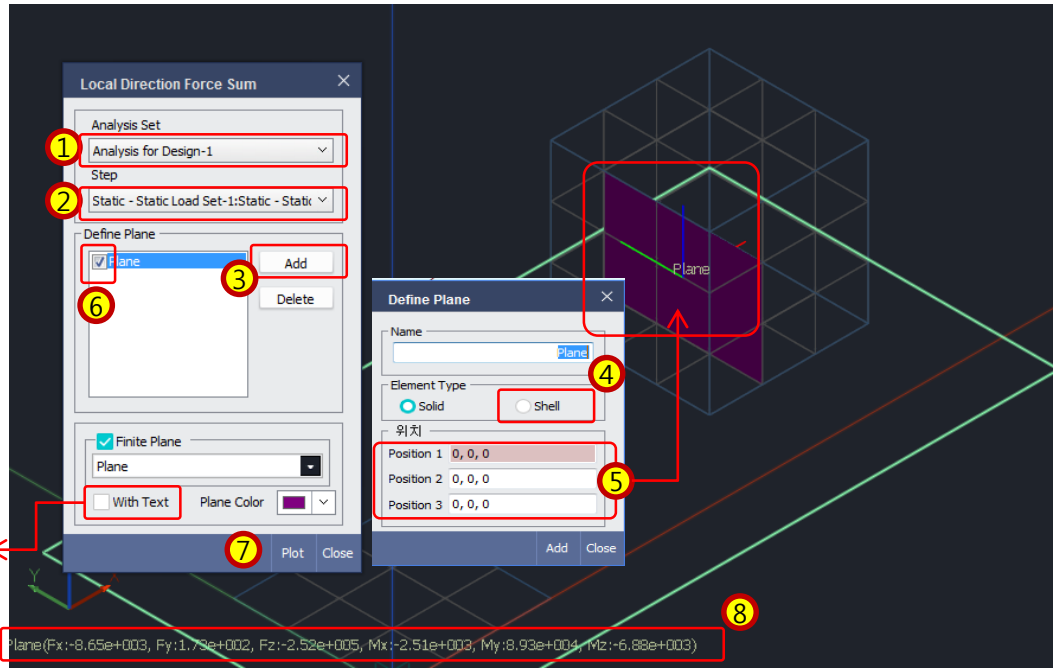


- Plot resultant forces on a selected line or plane in 2D or 3D member

1) Select ‘Analysis Set’
2) Select ‘Static Load’ or ‘Load Combination’
3) Click ‘Add’
4) Enter Name and select Element Type
5) Set Line or Plane
6) Check on Plane Name
7) Click ‘Plot’
8) Check Result for LDF sum

Text report for LDF sum

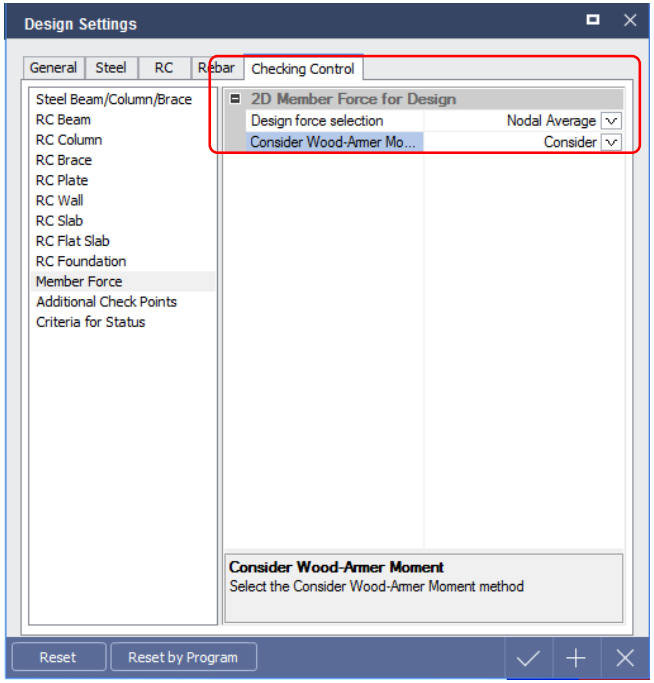




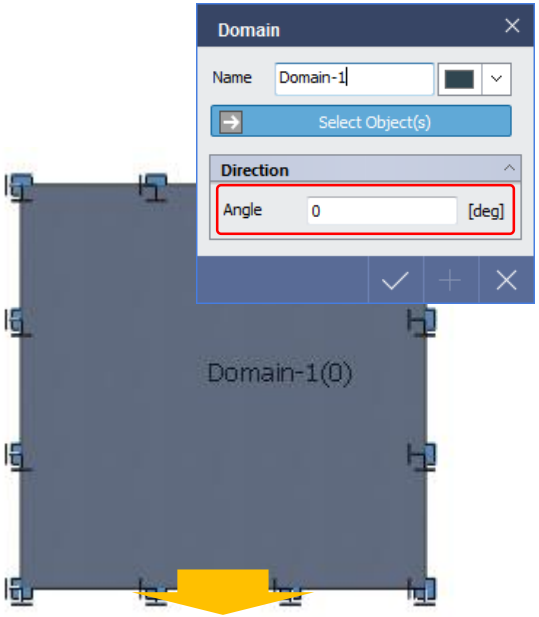
11. Improvement for Slab design

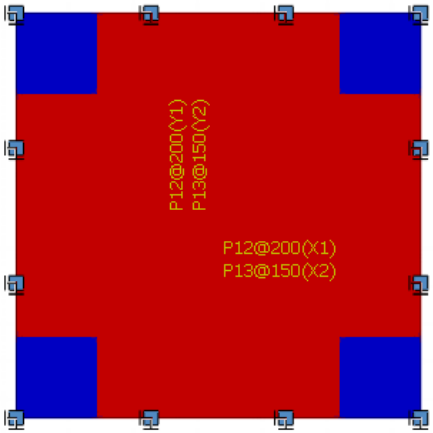
Design Considering Wood-Amer Moment

nGen > Design > Design Setting > Checking Control Tab

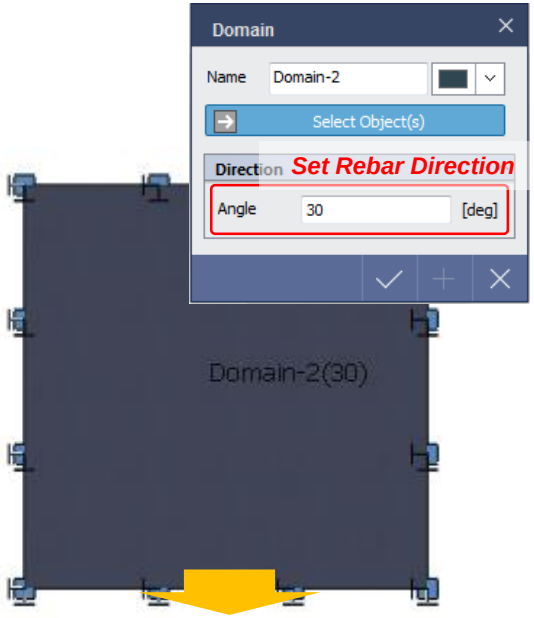


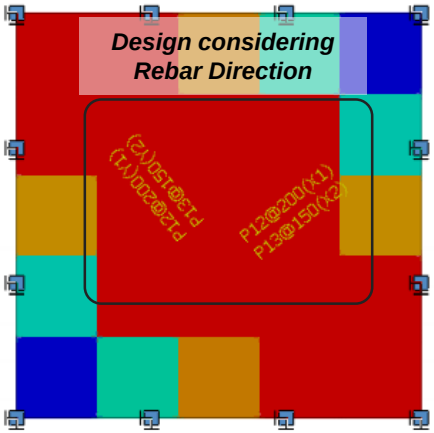
Design Setting Dialog





Rebar Direction : Angle = 0



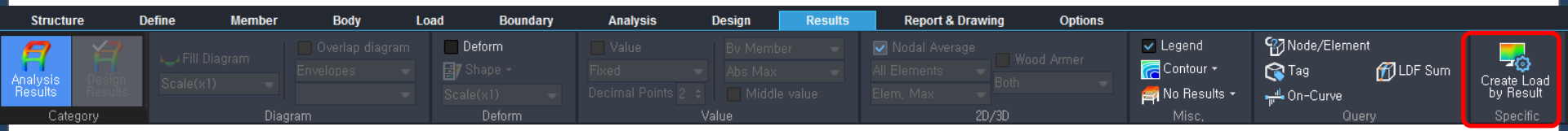


Rebar Direction : Angle = 30

12. Point load conversion of Analysis results

Add Feature to create Point load by Result

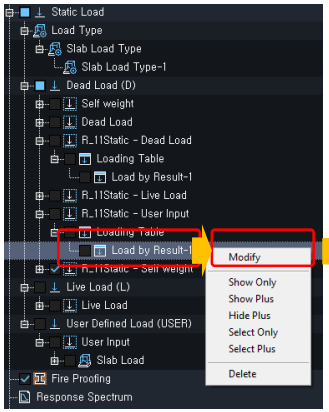
nGen > Ribbon > Result > Specific > Create load by result

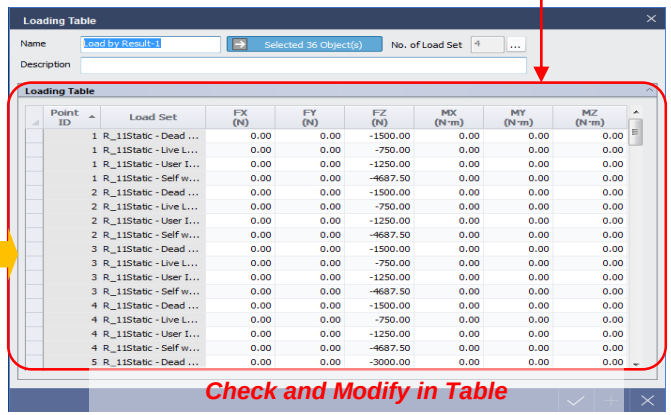


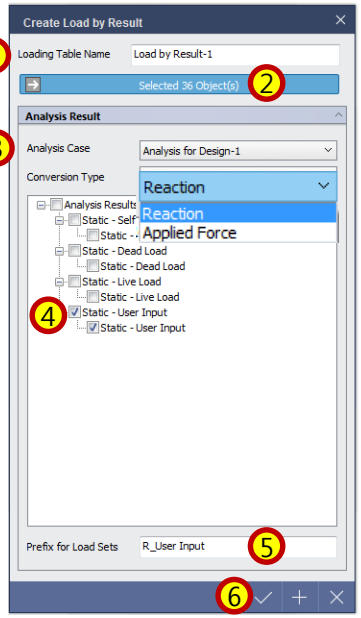
- Convert the analysis result to the point loads.
- Reaction and Applied Force type are supported

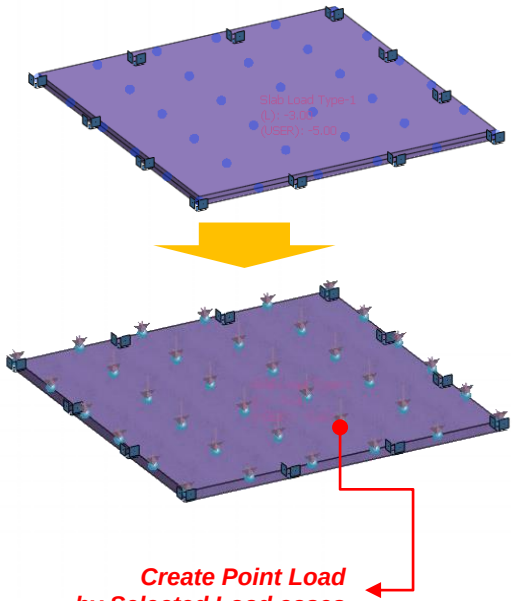
Procedure

1) Input Loading table Name (It is possible to check load table in load tree)
2) Select 'Objects' as Point
3) Select Analysis Case and Conversion Type
4) Select Load Case
5) Input Load Set Name
6) Click 'O.K.'







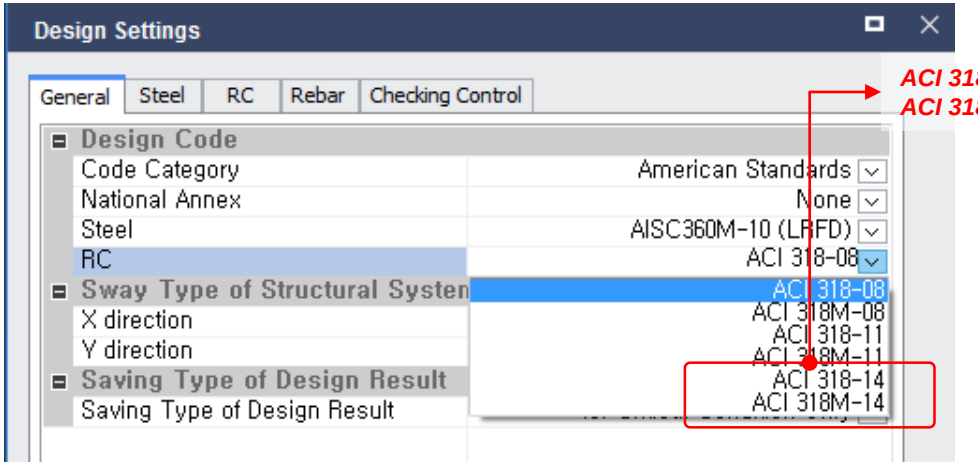


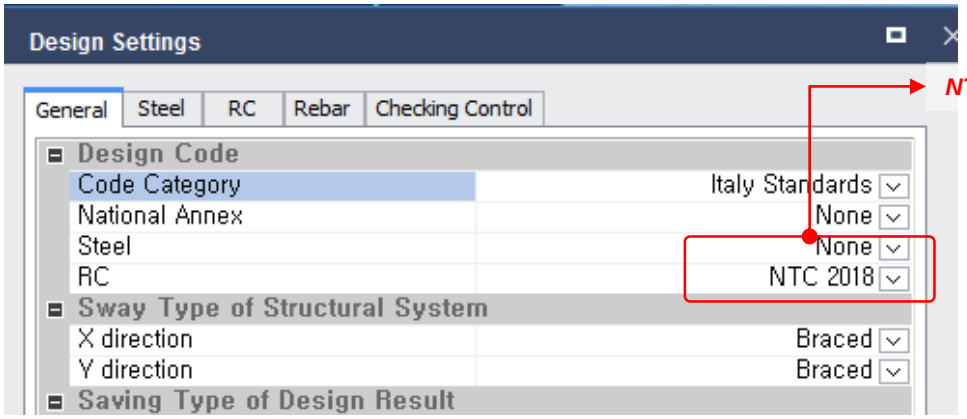
13. Add new Design Code

Add ACI318-14 and NTC 2018 & Torsion Design as per EN1993-1-1-2005

nGen > Design > Design Setting > General Tab

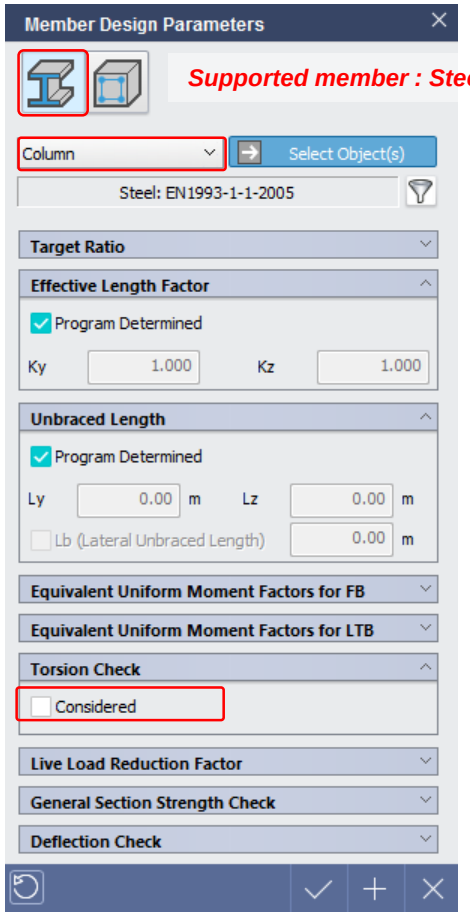
Add ACI318-14 and NTC 2018





nGen > Design > Design Parameter > Member Design

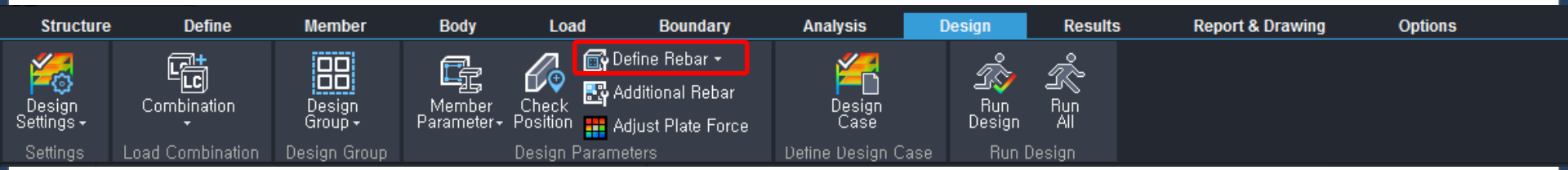
Add Torsion Design as per EN1993-1-1-2005



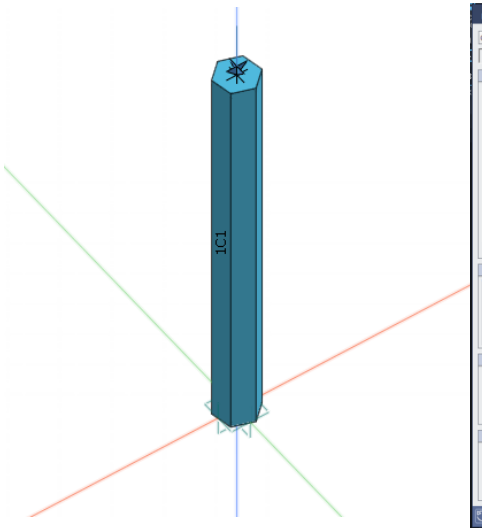
14. Add new Member

Add General Column with irregular cross section

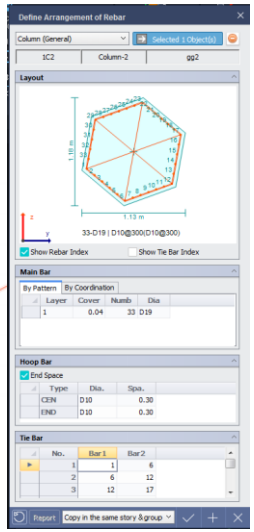
nGen > Design > Define Rebar > Column (General)



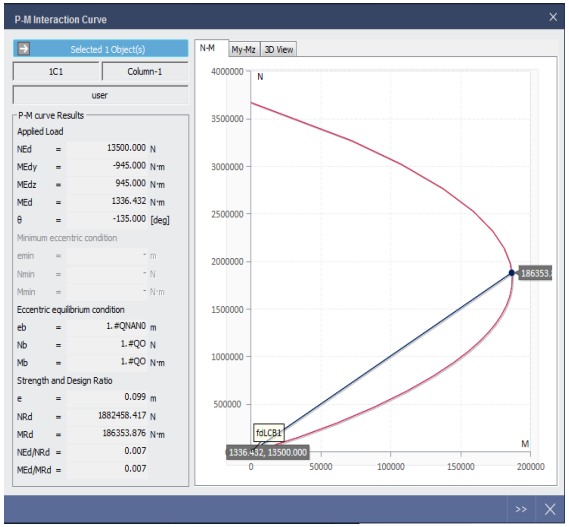
- Support a modeling, analysis, design, rebar layout, reporting, and drawing for irregular sections.



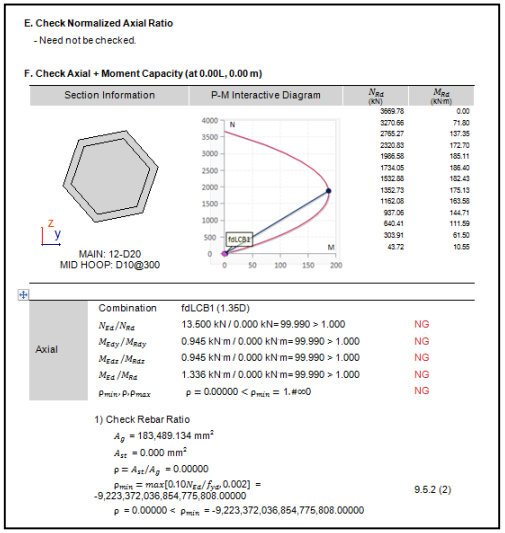
Column(General) modeling



Rebar Define



P-M Interaction Curve

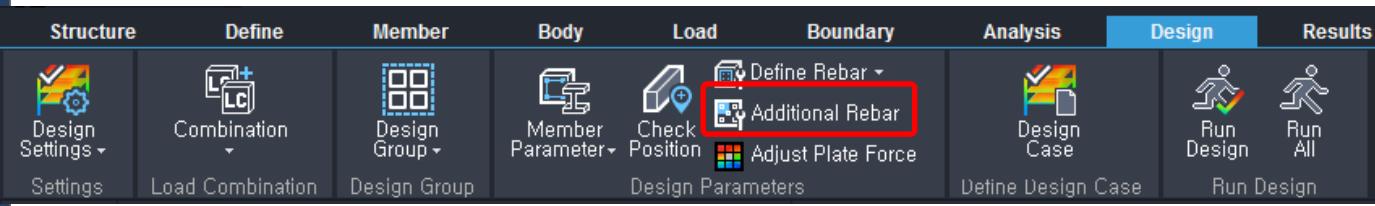


Design Report / Drawing

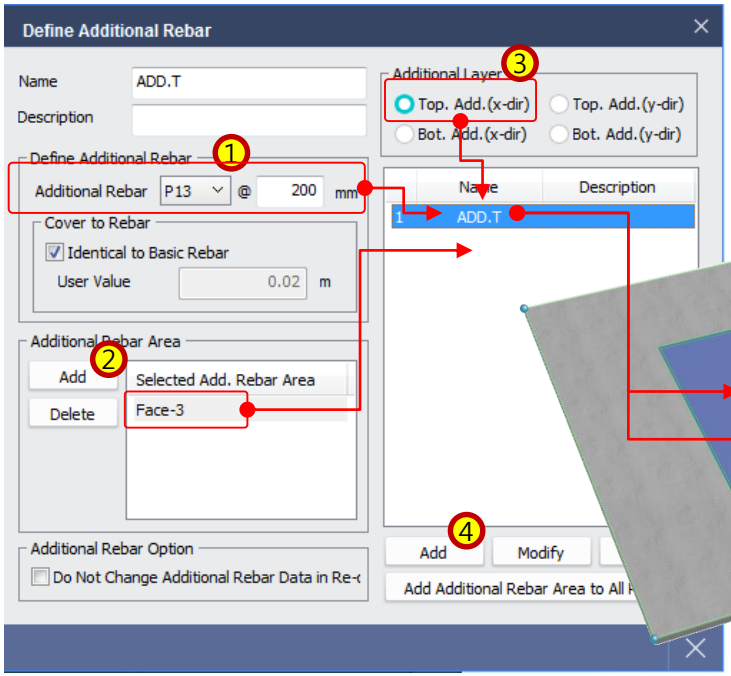
15. Flat slab design

Add Additional Rebar

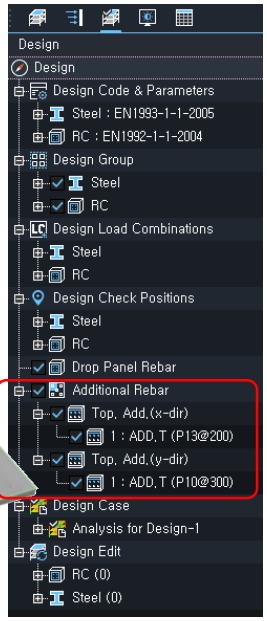
nGen > Design > Design Parameters > Additional Rebar



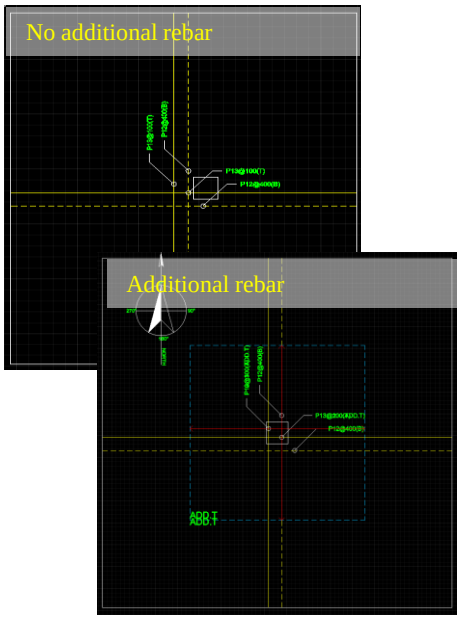
- Support to input an additional rebar data in defined area
- Support to generate automatically a drawing for additional rebar arrangement.



1) Set Additional Rebar
2) Add Additional Rebar Area
3) Select Position and Direction of Additional Rebar
4) Click “Add”



Design Tree

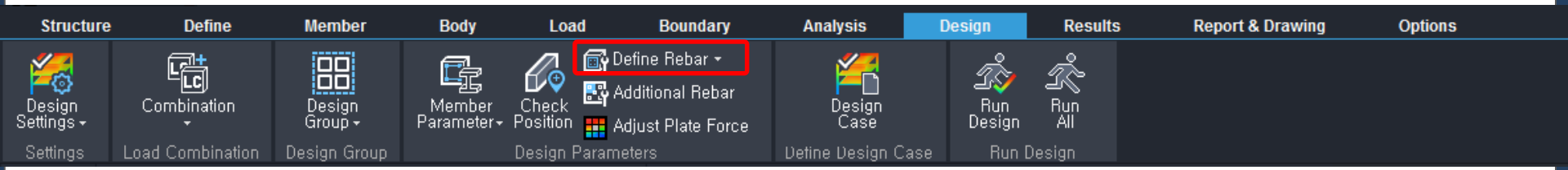


Additional Rebar Drawing

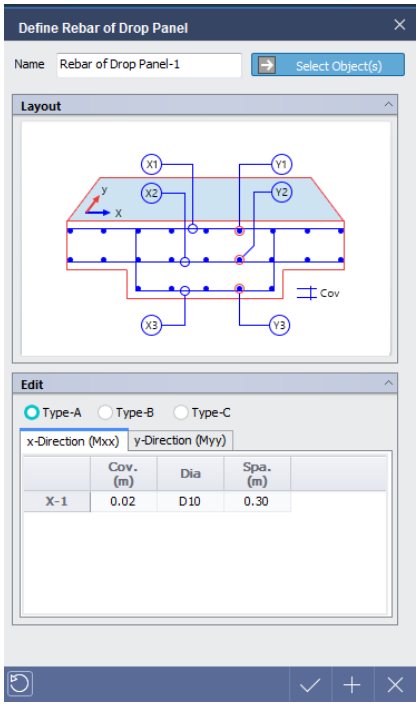
15. Flat slab design

Define Rebar in Drop Panel

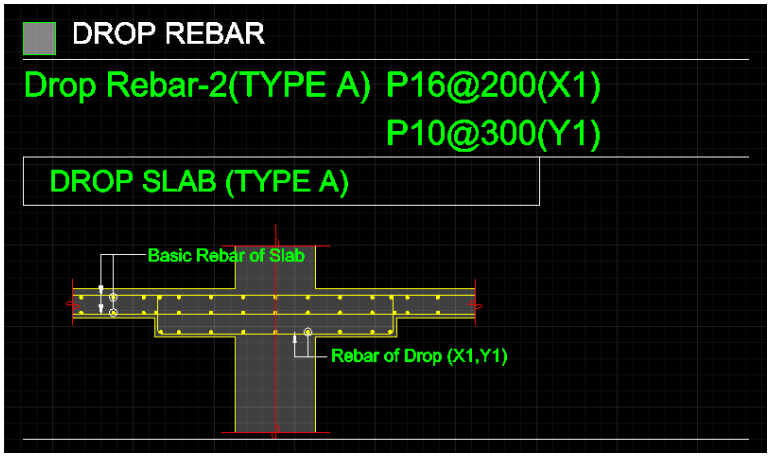
nGen > Design > Design Parameters > Define rebar > Define Rebar of Drop Panel



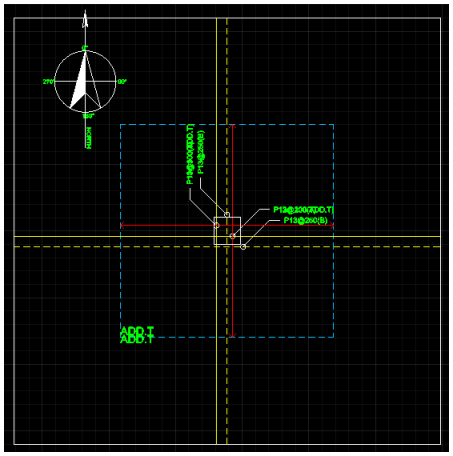
- Support to input a rebar data for drop panel
- Support to generate automatically a drawing for reinforcement arrangement in drop panel.



Section Detail for Drop panel



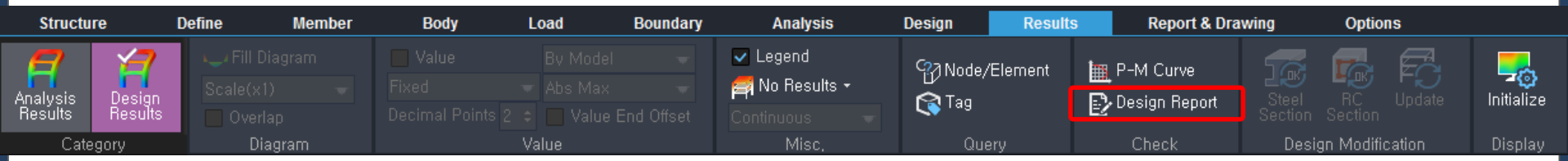
Plan drawing for Rebar arrangement

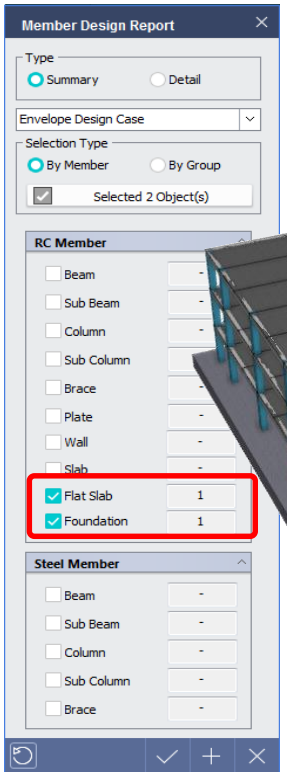


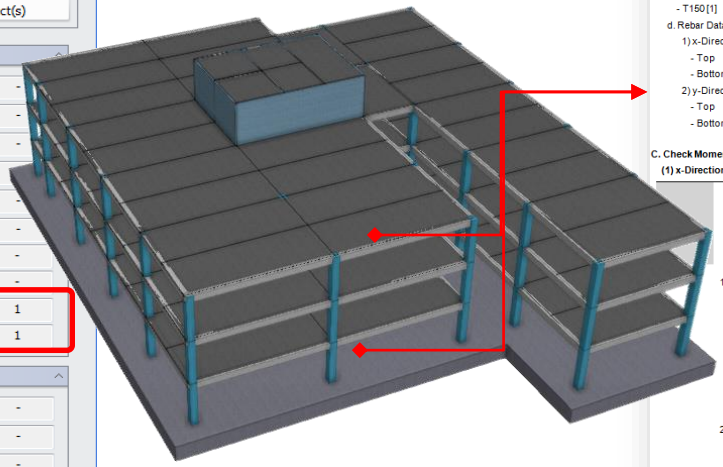
15. Flat slab design

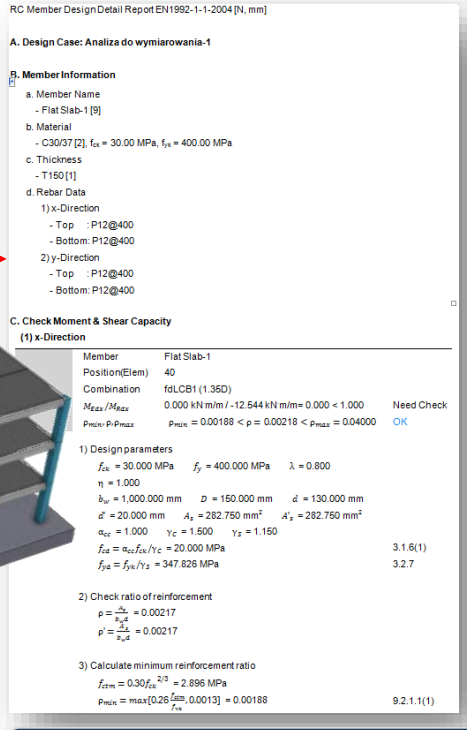
Reporting for Flat Slab & Foundation

nGen > Result > Design Tap > Design Report







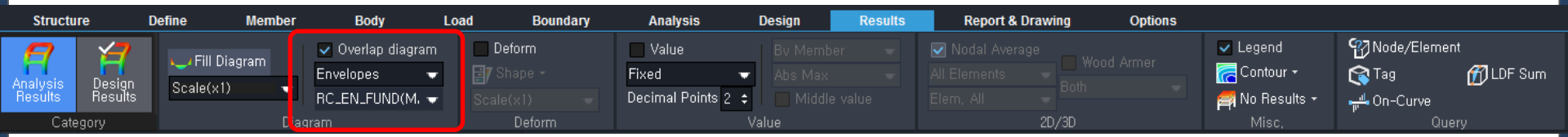


Detail Report for Flat slab and Foundation

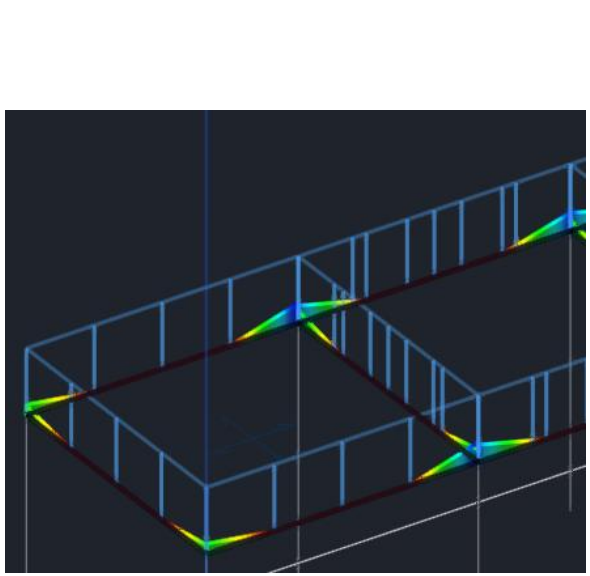
16. Improvement of display feature

Supporting Overlap diagram for Beam force

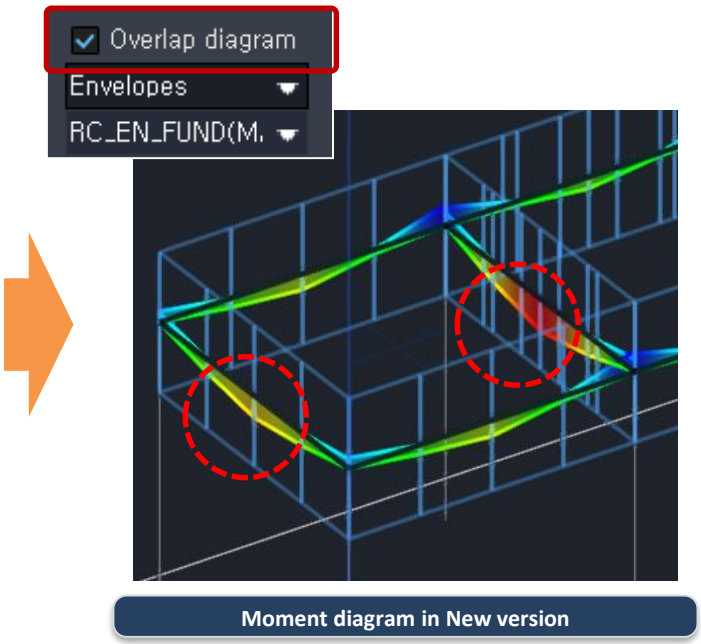
nGen > Ribbon > Design Result > Diagram > overlap



- Bending (+) and (-) are shown together.



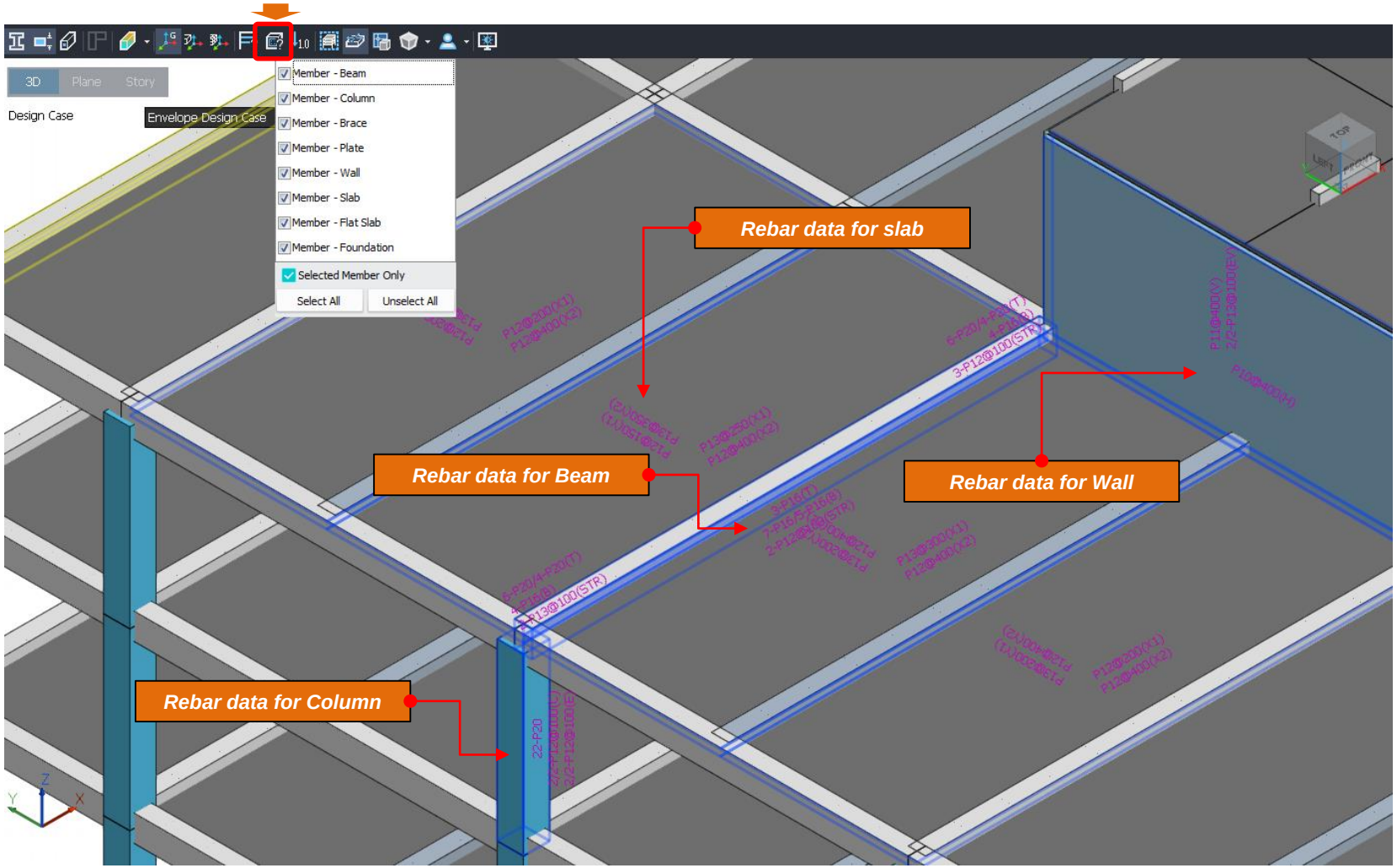
Moment diagram in Current version



Moment diagram in New version

16. Improvement of display feature

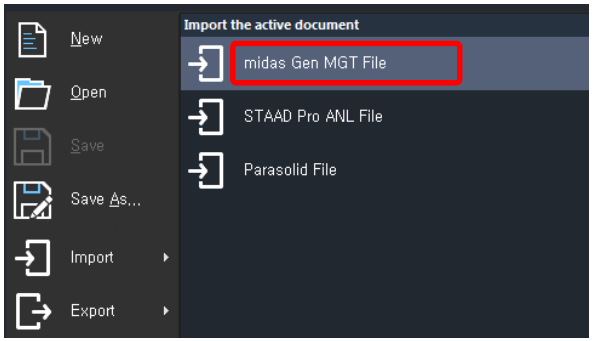
Display for Rebar Arrangement Data



17. Improvement of Interface

Improvement for nGen → Gen

nGen > file > > Import/ Export > MGT



- Flat slab and foundation members are added.
- nGen can import the rebar data of Gen,
  and Gen can import the rebar data of nGen.

Member type Table (nGen → Gen)

nGen (Member type)		Gen (Member type)
Beam		General Beam / Tapered Beam type
Sub Beam		General Beam / Tapered Beam type
Column		General Beam / Tapered Beam type
Sub Colum		General Beam / Tapered Beam type
Brace	Truss	Truss type
	Beam	General Beam / Tapered Beam type
	Tens. Only	Truss - Tension only / hook / Cable type
	Comp. Only	Truss - Compression only / Gap
Plate		Plate type
Wall	Membrane	Wall – membrane type
	Plate (Not meshed)	Wall – plate type
	Plate (Meshed)	Plate type
Slab	Plate (Out & In)	Plate type
	Membrane	Plane Stress Type
Shell		Plate type
Plate Beam		Plate type
Wall Column		Plate type
Load Surface (new)		Not export
Flat Slab (new)		Plate type
Foundation (new)		Plate type