MIDAS GEN NX

Release Note

Release Date : June 2026

Product Ver. : MIDAS GEN NX 2026 (v2.1)

GEN NX Enhancements Contents

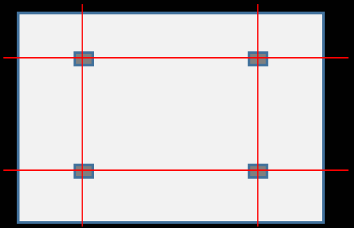
MIDAS

Design+ Enhancements Contents

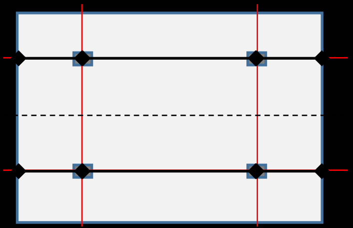
01 Post Tensioning Slab Design

Strip-Based Slab Design Workflow with Tendon

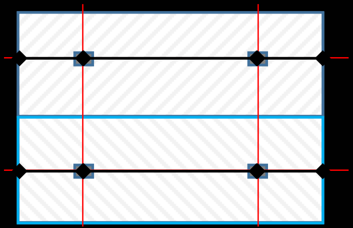
The GEN NX PT Slab workflow provides an integrated process from slab modeling to final reinforcement design. Users can define support lines and design strips, apply tendons with flexible profiles, review strip-based analysis results, and perform code-based slab design checks with detailed tables, reports, stress diagrams, and reinforcement input capabilities.



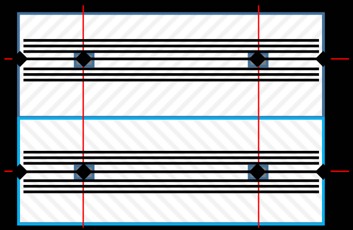
Slab Modeling& Load Apply



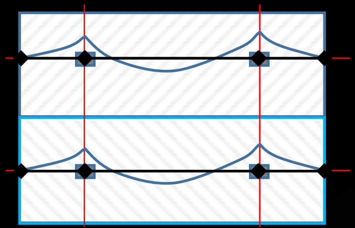
Create Support line



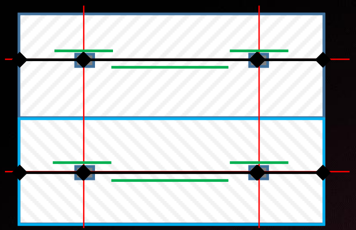
Create Design Strip



Create Tendon



Design Strip Result



Strip base Design / Input Rebar

CONCEPT

Slab Modeling& Load Apply	Create Support line	Create Design Strip	Create Tendon	Design Strip Result	Strip base Design / Input Rebar
Model the meshed plate models for slab	Define the path of Strips in geometry	Create slab design strip with design sections	Input tendons for hori. And verti. axis	Check the analysis result for element and strip base	Auto design & check for slab strip with rebar

FEATURES

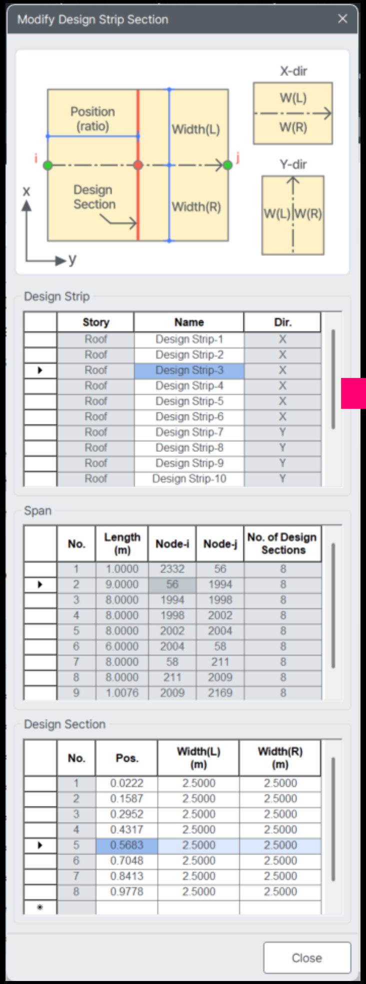
Slab Modeling& Load Apply	Create Support line	Create Design Strip	Create Tendon	Design Strip Result	Strip base Design / Input Rebar
	• Create Support Line • Extend to Slab Edge • Node Snap • Support Line Display	• Auto-Create Strip • User Define No. of Section • Modify Design Section	• Single/Band/Dist. Tendon • Auto No. of Tendon • Shape Template • Modify Tendon Profile (Vertical/Horizontal)	• Auto-Create stage LC (PT Transfer, PT long term) • Direct Secondary Force Method • Strip Force/Stress Diagram • Strip Force/Stress Table • Tendon Force/Loss Table	• Strip/Span/Section design result table • Summary/Detail report • Additional rebar input • Code Check

01 Post Tensioning Slab Design

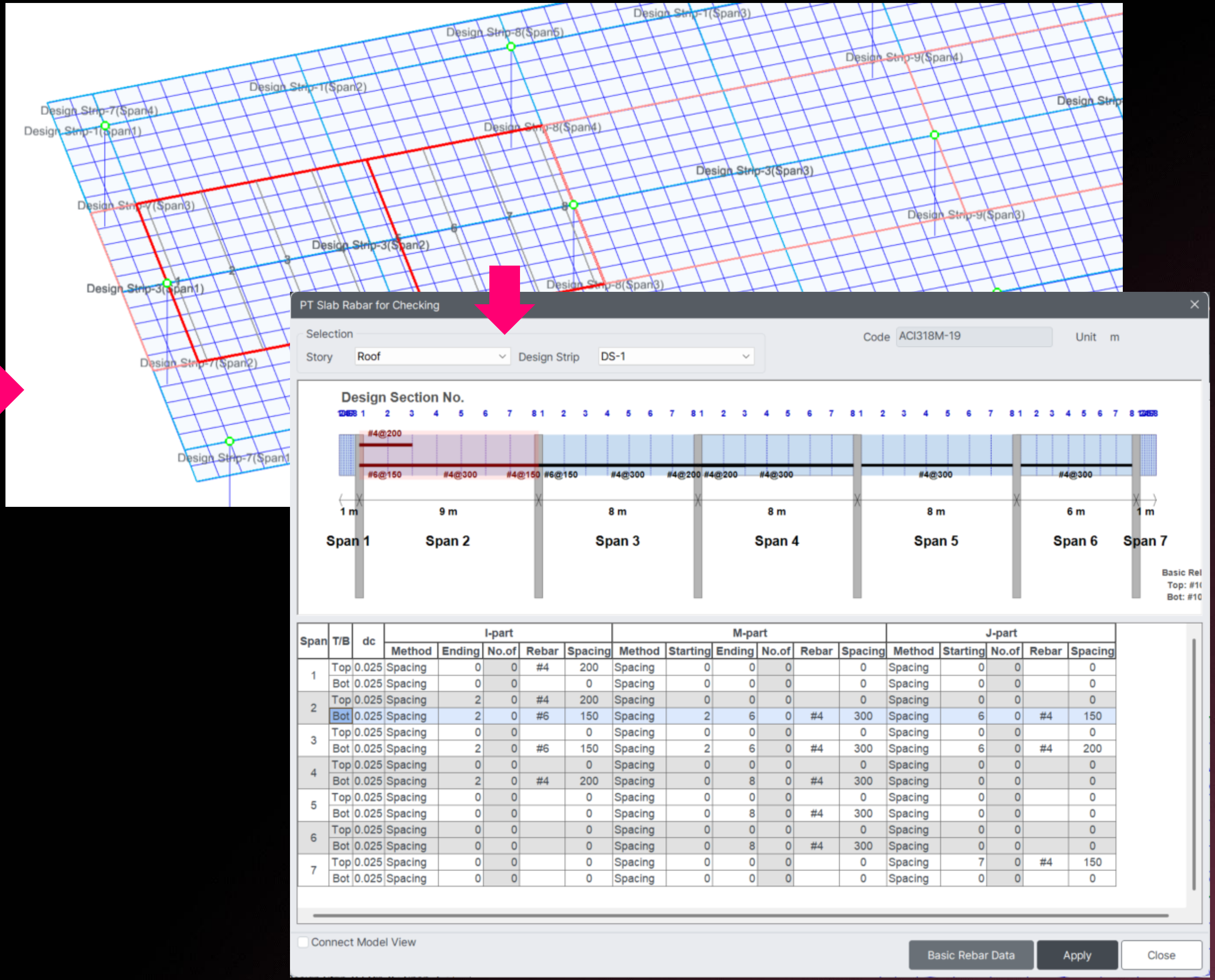
Custom Strip with Design Section & Reinforcement Input

The program automatically generates Design Sections for each Strip based on the slab tributary area, while also allowing users to freely customize the layout as needed. Based on the defined Strip, the program can automatically suggest required reinforcement or allow users to manually define and review reinforcement layouts.

- Strip-Based Design Workflow
- Flexible Tendon Modeling
- Advanced Tendon Analysis & Results
- Integrated Design of Multi-Story Building
- Design according to ACI318-19
- Comprehensive PT Slab Design Review Tools



Modify Design Strip Section



PT Slab Rebar Input

01 Post Tensioning Slab Design

Strip-Based Analysis and Design Result Review

Users can review slab analysis results based on the defined Strips, including force diagrams (Axial Force, Bending Moment, Shear Force, etc.) and stress diagrams (Top / Bottom). Using the analysis forces obtained from each Load Case and Load Combination, strip-based design and verification can also be performed efficiently.

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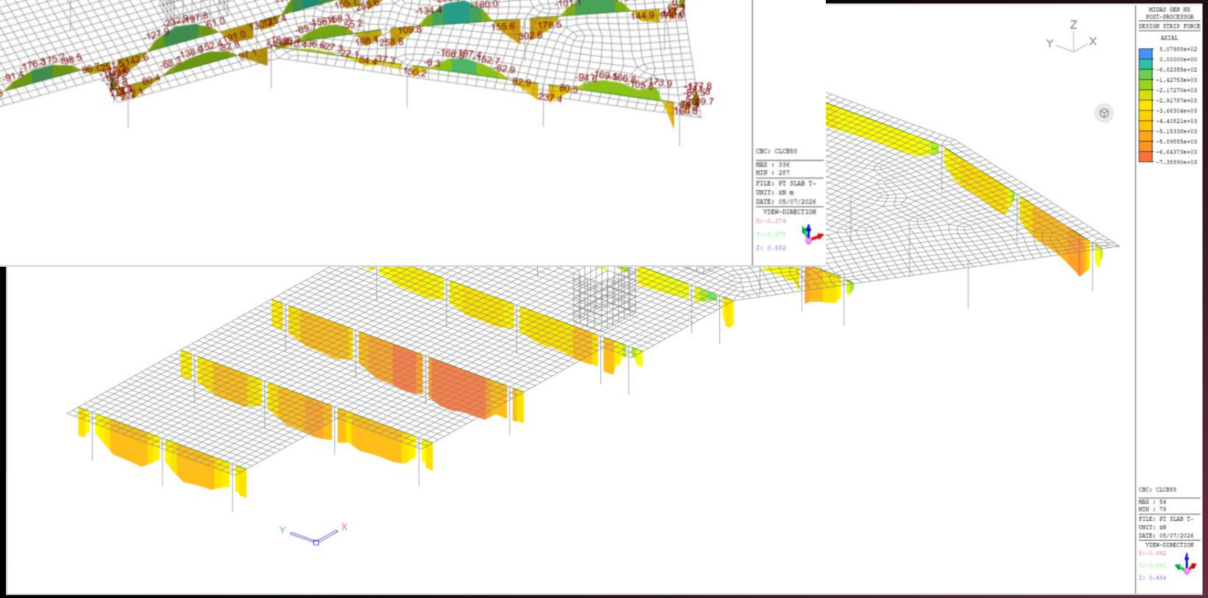
Strip Bending Moment Diagram (My)



Strip Axial Force Diagram (Fx)

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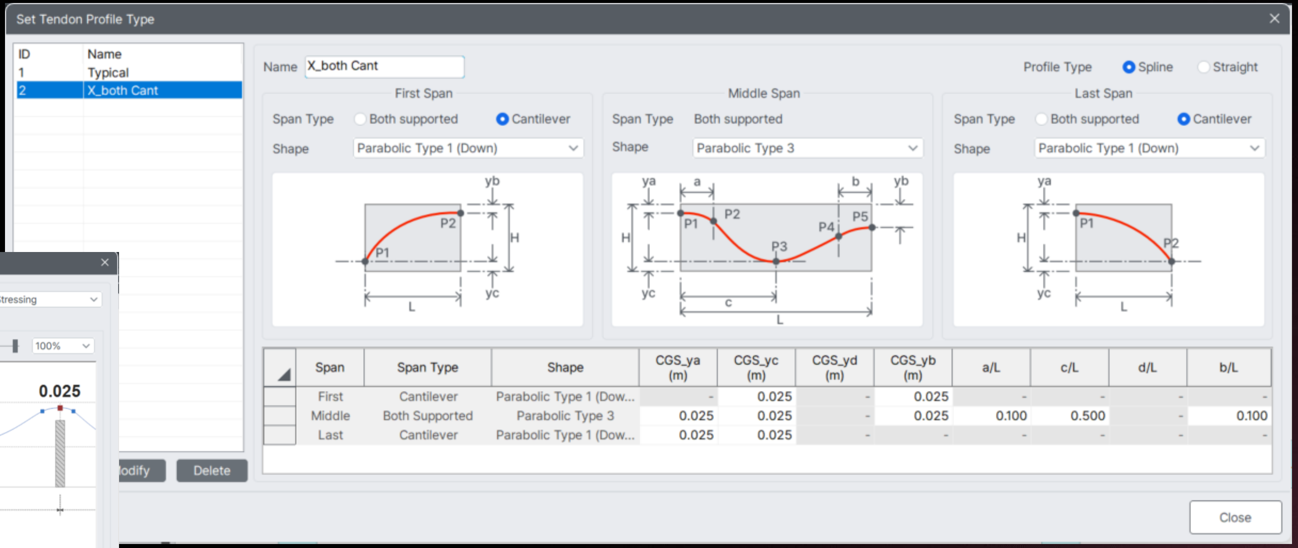
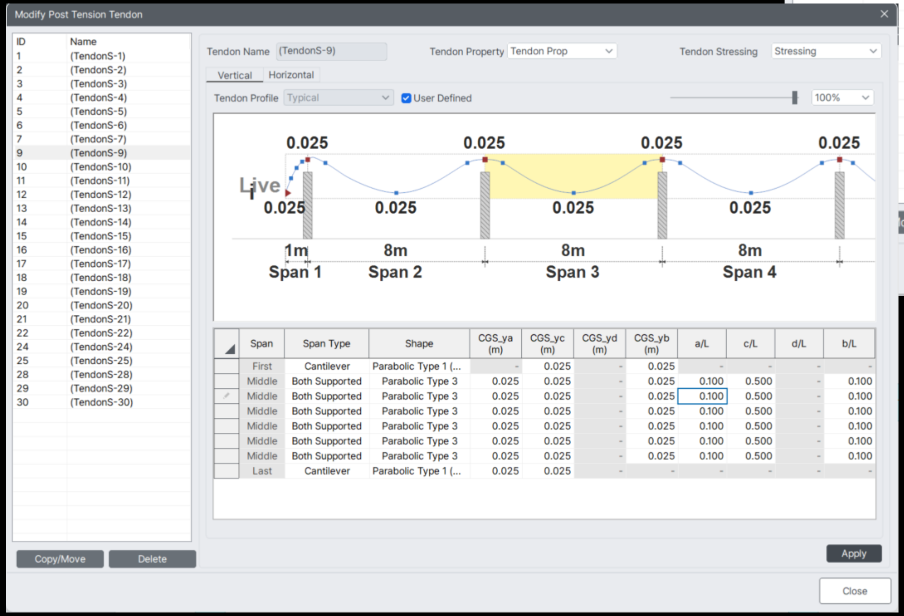
Flexible Tendon Modeling for Irregular Slab Shape and Profile

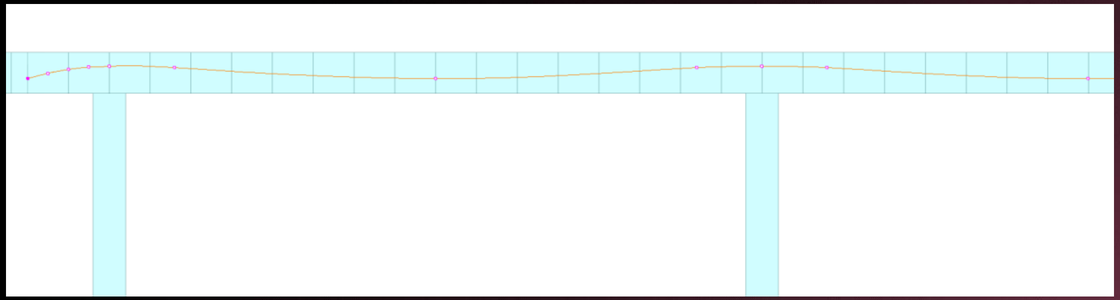
Users can freely create tendon layouts on the plane of irregularly shaped 2D plate elements. By utilizing various built-in tendon profile templates, tendons can be defined easily and quickly, while also allowing users to directly customize and edit tendon profiles with user-defined shapes including CGS, Profile Shape, Length, etc. Created Tendons can be displayed on the model view according to the Slab Thickness.

Tendon Profile Shape Template





Modify Tendon with User-Defined option



Created Tendon on Model View

01 Post Tensioning Slab Design

Automatic Prestress Stage Load Case Generation (Initial / Service)

Without requiring separate user-defined construction stages, the program automatically generates stage-based load cases with prestress loss effects considered in accordance with ACI requirements. Using these load cases, users can review prestress analysis results and generate load combinations for design and verification purposes.

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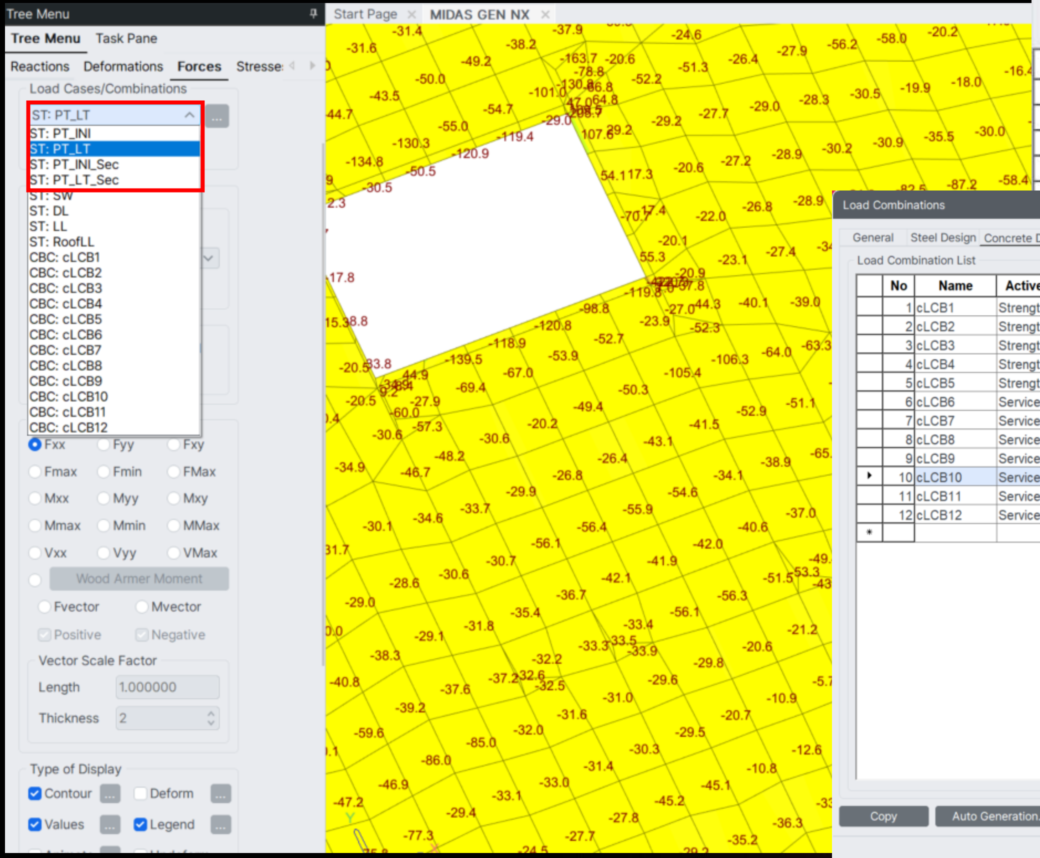
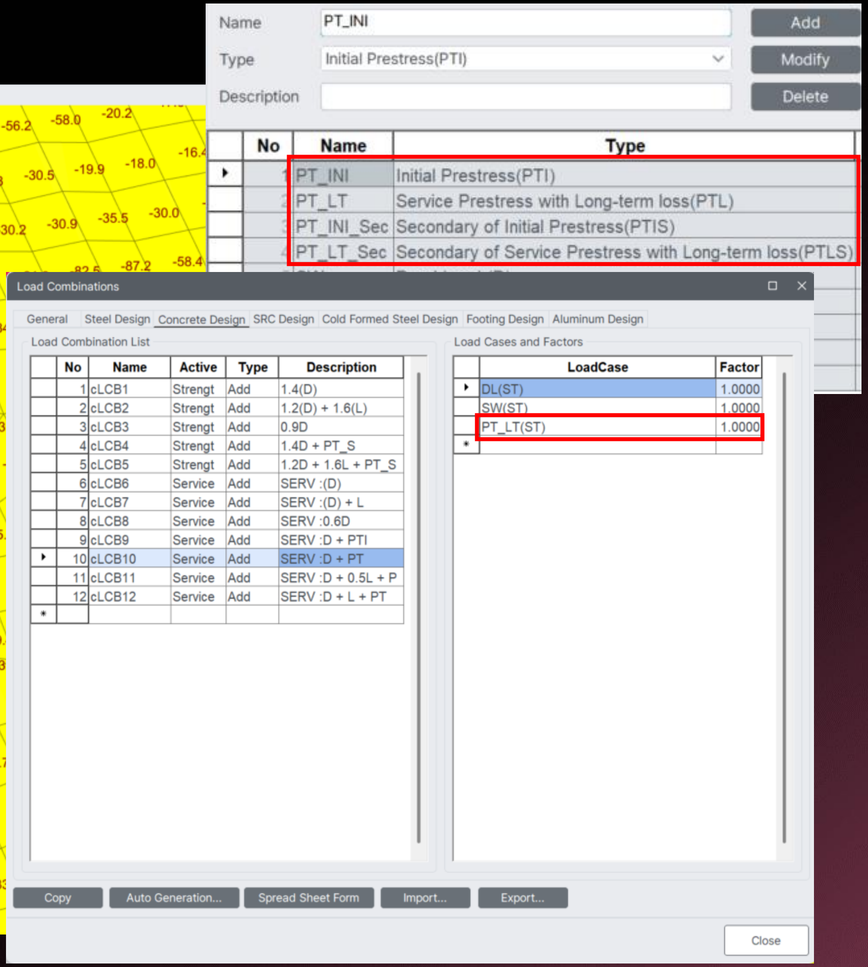


Analysis Results



Load Combination

MIDAS

01 Post Tensioning Slab Design

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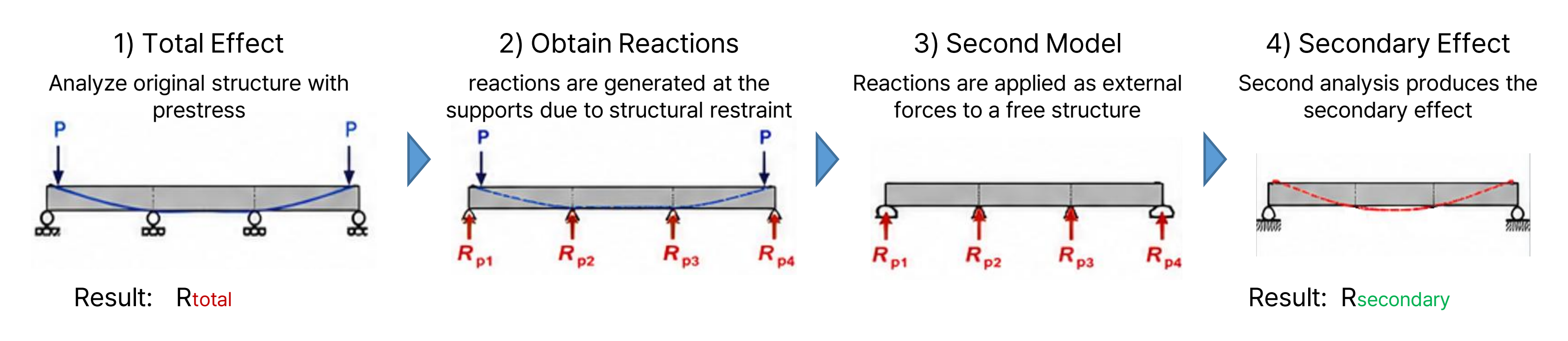
Tendon Secondary Effect Analysis with Direct Method

The PT Slab analysis has been implemented to evaluate Secondary Prestress effects using the Direct Method. The Direct Method instead calculates the restraint reactions generated by prestressing in a released (free) structure and applies the opposite reactions as external loads to directly evaluate the Secondary response. By adopting the Direct Method, GEN now delivers a more robust and realistic simulation of Secondary Prestress effects in PT Slab analysis.

Direct Method (Reaction-Based Method)



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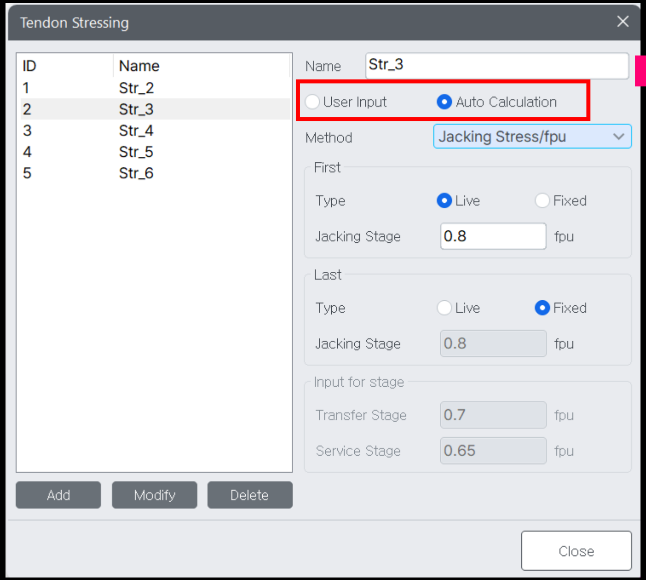
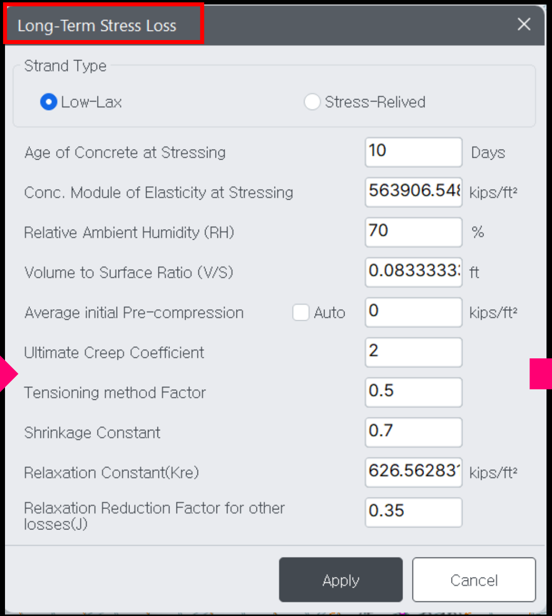
FEM Tendon Analysis with Automatic Loss Calculation

The modeled tendons are analyzed using FEM analysis considering both their planar location within the slab elements and their tendon profile shapes. In addition, the Auto Calculation of Prestress Loss feature automatically considers short-term and long-term prestress losses based on design code requirements, allowing users to define tendon stressing efficiently. After analysis, the calculated prestress loss and the resulting effective tendon force for each tendon can be reviewed in table format.



Auto Calculation for prestress losses



$$TL = ES + CR + SH + RE$$

Where,

CR = stress loss due to creep,
ES = stress loss due to elastic shortening,
RE = stress loss due to relaxation in prestressing steel,
SH = stress loss due to shrinkage of concrete, and
TL = total loss of stress.

Input for Long-term loss

Tendon	Elem	Part	Force (After Immediate Loss) (kN)	Force (After All Loss) (kN)
(TendonS-10)	331	Start	1313.05	910.78
(TendonS-10)	331	End	1313.67	974.98
(TendonS-25)	332	Start	1476.80	1209.90
(TendonS-25)	332	End	1459.47	1183.57
(TendonS-11)	346	Start	1726.06	1375.95
(TendonS-11)	346	End	1699.56	1291.59
(TendonS-13)	347	Start	2023.15	1824.75
(TendonS-12)	347	Start	1739.94	1425.24
(TendonS-13)	347	End	2025.56	1813.20
(TendonS-12)	347	End	1744.74	1510.24
(TendonS-9)	350	Start	851.37	644.26
(TendonS-9)	350	End	749.53	214.06
(TendonS-10)	351	Start	838.83	575.93
(TendonS-10)	351	End	735.78	158.56
(TendonS-13)	352	Start	2160.43	2075.72
(TendonS-25)	352	Start	1357.76	1284.87
(TendonS-13)	352	End	2169.86	2127.01
(TendonS-25)	352	End	1371.30	1222.55
(TendonS-30)	354	Start	1333.40	959.03
(TendonS-14)	354	Start	1585.86	1163.12
(TendonS-29)	354	Start	1432.96	1248.90
(TendonS-14)	354	Start	1585.86	1163.12
(TendonS-14)	354	End	1482.92	1010.40
(TendonS-14)	354	End	1482.92	1010.40
(TendonS-29)	354	End	1479.08	1187.69
(TendonS-30)	354	End	1375.10	976.11
(TendonS-30)	355	Start	1305.70	1043.98
(TendonS-30)	355	End	1380.35	1225.94
(TendonS-24)	359	Start	914.97	764.73
(TendonS-24)	359	End	915.25	736.96
(TendonS-10)	360	Start	1079.60	933.24
(TendonS-10)	360	End	1064.41	880.36

Tendon Force with Short/Long-term losses

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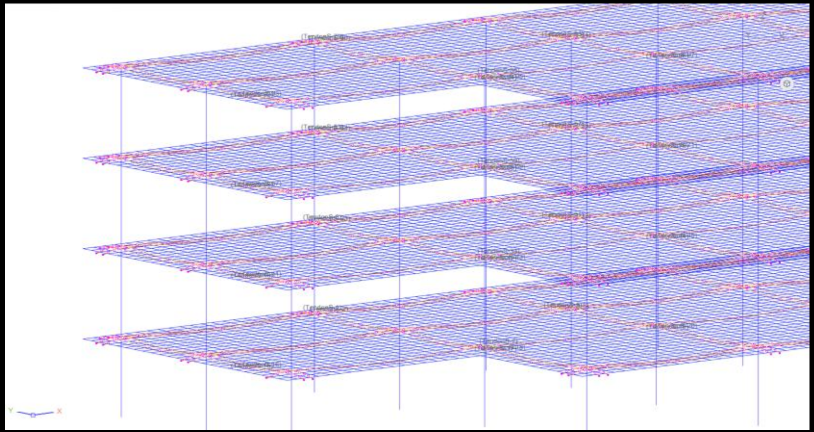
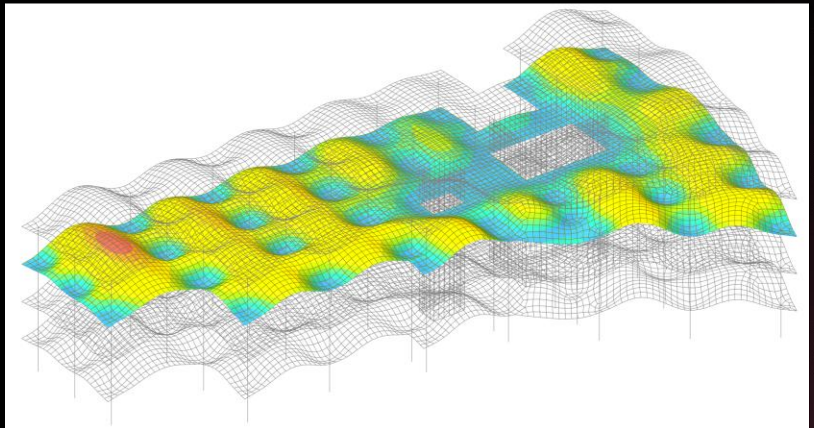
Integrated Design of Multi-Story Structural Systems

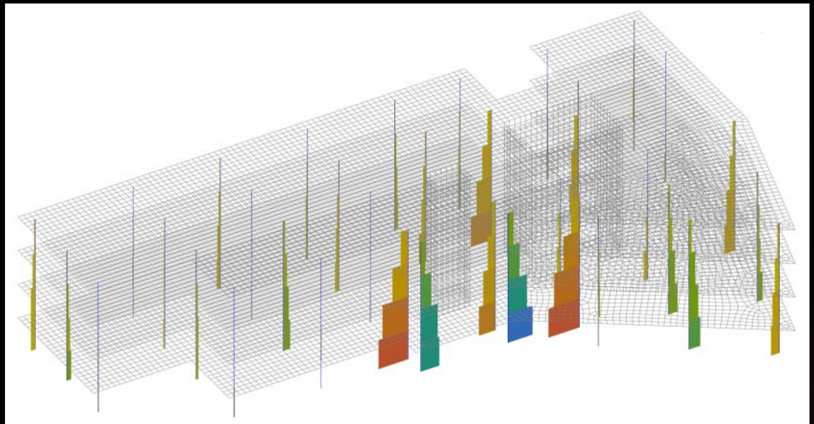
Through the PT Slab Design module in MIDAS GEN NX, users can evaluate the behavior of an entire building structure within a single integrated model, including RC beams, columns, walls, and PT slabs, rather than designing only an isolated PT slab floor. All the load types including Gravity, Wind, Seismic Load can be applied together. This enables accurate integrated analysis and design of structural members while considering the interaction and influence of the PT slab system



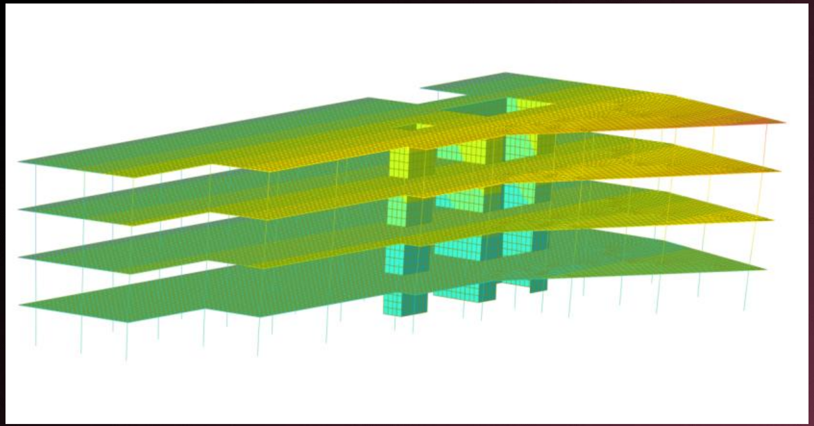
PT Slab Modeling for Multi-Story Building



PT Slab Analysis & Design Results



Integrated Analysis & Design in a Single Model



Applied all types of Load including Gravity & Lateral Load

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Design according to ACI 318-19

In accordance with ACI 318-19 requirements, the program automatically generates load combinations including prestress effects and supports serviceability checks for Initial, Sustained, and Total Load stress conditions, as well as strength checks for flexure and punching shear. MIDAS GEN NX provides both automated Design, where the program suggests required reinforcement based on code requirements, and Check functions for checking user-defined reinforcement layouts.

Service(Initial) Load Combination (Active → Service)

1.0D + 1.0 PT_INI

Service(Sustained) Load Combination (Active → Service)

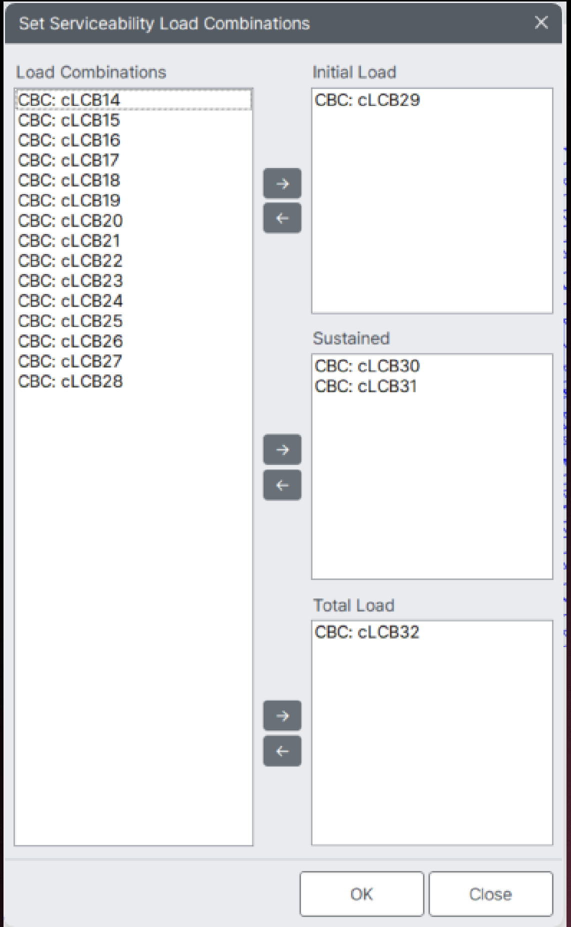
1.0D + 1.0PT_LT
1.0D + 0.5L + 1.0PT_LT

Service(Total) Load Combination (Active → Service)

1.0D + 1.0L + 1.0PT_LT

Ultimate Limit State Load Combination (Active → Strength)

1.4D + 1.0PT_LT_Sec
1.2D + 1.6L + 0.5Lr + 1.0PT_LT_Sec
1.2D + 1.0L + 1.6Lr + 1.0PT_LT_Sec
1.2D + 1.6(0.75 PL) + 0.5Lr + 1.0PT_LT_Sec
1.2D + 1.6L + 0.5S + 1.0PT_LT_Sec
1.2D + 1.0L + 1.6S+ 1.0PT_LT_Sec
0.9D ± 1.0W + 1.0PT_LT_Sec
1.2D + 1.0L + 0.5Lr ± 1.0W + 1.0PT_LT_Sec
1.2D + 1.6Lr ± 0.5W + 1.0PT_LT_Sec
1.2D + 1.6S ± 0.5W + 1.0PT_LT_Sec
1.2D + 1.0L + 0.5S ± 1.0W + 1.0PT_LT_Sec
0.9D ± 1.0E + 1.0PT_LT_Sec
1.2D + 1.0L + 0.2S ± 1.0E + 1.0PT_LT_Sec



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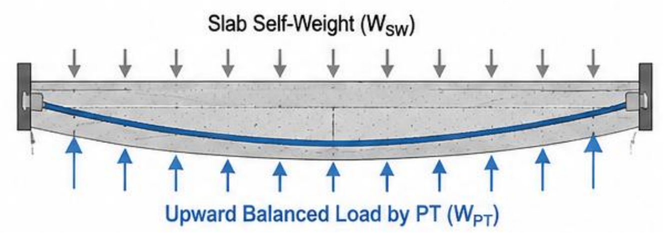
Selfweight Balance Ratio

[Concept]

$$\text{Ratio} = \frac{W_{PT}}{W_{SW}} \times 100\%$$

[GEN NX]

$$R_M = \frac{|M_{PT,Primary}|}{|M_D|}$$



Precompression

ACI318M-19 8.2.3, 8.6.2.1

For prestressed slabs, the effective prestress force shall provide a minimum average compressive stress of 0.9 MPa on the slab section tributary to the tendon or tendon group.

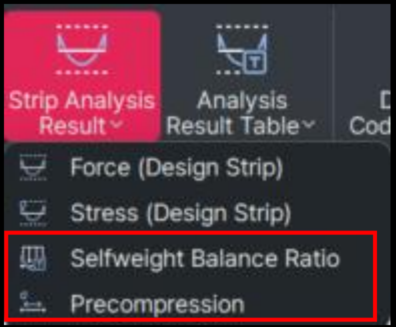
$$0.9\ \text{MPa} \leq f_{pc}$$

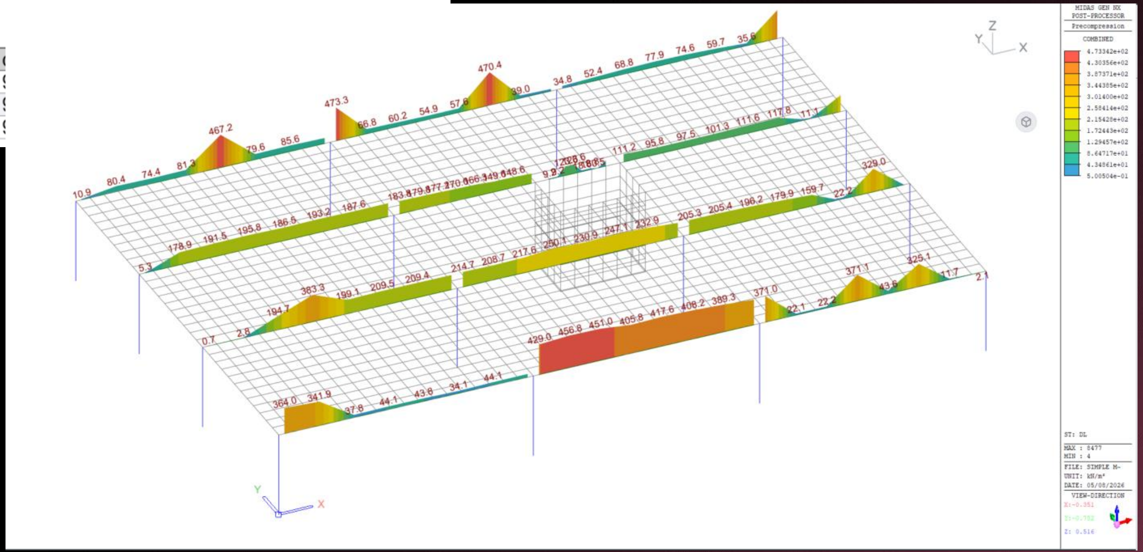
3. Selfweight Balance Ratio

Span	Msw	Mpt	Mpt/Msw	Min	Max	Check
1	89.7723	-13.562	0.151	0.60000	0.80000	NG
2	9.21326	-6.2724	0.681	0.60000	0.80000	NG
3	-28.063	14.6924	0.524	0.60000	0.80000	NG

4. Pre-compression

Span	PT Force	Area	Comp.
1	233.492	0.49973	467.240
2	236.671	0.50000	473.342
3	202.627	0.50000	405.253





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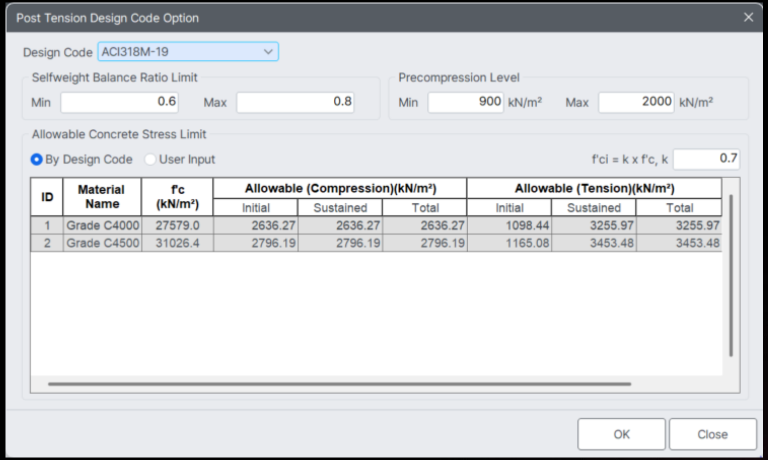
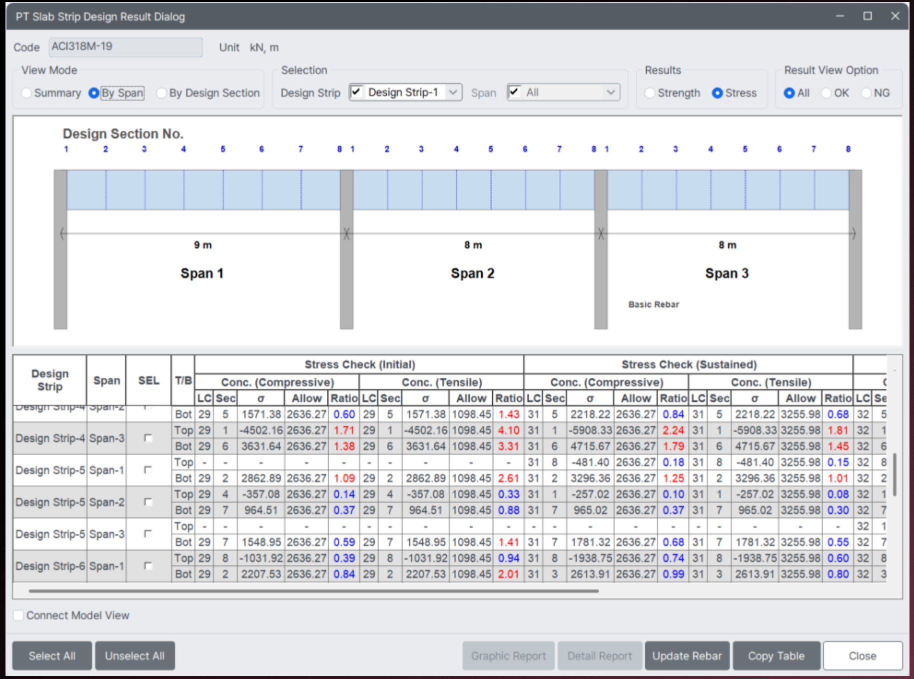
Serviceability – Stress check

Stage	Conditions	Allowable Stress
Initial Service Load 1) * Allowable (Initial)	*Extreme fiber stress in compression* (ACI318M-19 Table 24.5.3.1)	$0.60f'_{ci}$
	Extreme fiber stress in tension (ACI318M-19 Table 24.5.3.2)	$0.25f'^{0.5}_{ci}$
Final (Service Load)	*Extreme fiber stress in compression (at Long-Term Service Load)* 2) → Allowable (Sustained) (ACI318M-19 Table 24.5.4.1)	$0.45f'_{c}$
	Extreme fiber stress in compression (prestress + total load) 3) → Allowable (Total) (ACI318M-19 Table 24.5.4.1)	$0.60\,f'_{c}$
	Extreme fiber stress in tension (2-way) : ***Uncracked*** (ACI318M-19 Table 24.5.2.1)	$0.50f'^{0.5}_{c}$

ACI318M-19 Chapter 24. Serviceability





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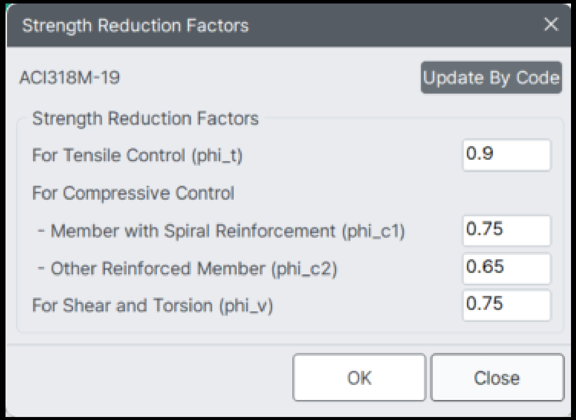
Strength Check

The design moment (Mu) must be less than the moment which the section can develop, the nominal moment (Mn), reduced by a strength reduction factor (Φ). The expression ΦMn is reffered to as design capacity.

$$Mu \le \Phi Mn$$



(3) Calculate force components at the neutral axis

- $\beta_1 c = 0.00753m$
- $F_{cc} = \beta_1 c f_c b = 525kN$ (Compression force by concrete)
- $F_{cs} = \sum (A_{s.i} f_{s.i}) = 0.000kN$ (Compression force by reinforcement based on singly reinforced design)
- $F_{ct} = \sum (A_{t.i} f_{t.i}) = 0.000kN$ (Compression force by tendon)
- $F_c = F_{cc} + F_{cs} + F_{ct} = 525kN$ (Compression force)
- $F_s = \sum (A_{s.i} f_{s.i}) = 95.11kN$ (Tensile force by reinforcement)
- $F_t = \sum (A_{t.i} f_{t.i}) = 429kN$ (Tensile force by tendon)
- $F_c / (F_s + F_t) = 1.000$

(4) Check neutral axis depth for unbonded tendon

- $d = 0.330m$
- $c / d = 0.0228 \le 0.375$
- Neutral axis depth is acceptable for unbonded tendon.

(5) Calculate moment resistance

- $\phi = 0.900 (0.65 \le \phi \le 0.90)$
- $M_{cc} = F_c a_c = 2.511kN \cdot m$
- $M_{cs} = F_{cs} a_{cs} = 0.000kN \cdot m$
- $M_{ct} = F_{ct} a_{ct} = 0.000kN \cdot m$
- $M_{ns} = F_s a_s = 32.57kN \cdot m$
- $M_{nt} = F_t a_t = 0.000kN \cdot m$
- $M_n = M_{cc} + M_{cs} + M_{ct} + M_s + M_t = 246kN \cdot m$
- $\phi M_n = 221kN \cdot m$
- $M_u = 37.63kN \cdot m$
- $M_u / \phi M_n = 0.170 < 1.000 \rightarrow$ O.K

01 Post Tensioning Slab Design

Design Result Review for Strip to Design Section

For PT slabs designed using the strip-based approach, users can review comprehensive results in table format, including overall strip summaries, span-level results within each strip, and detailed results for each Design Section, which is the minimum design unit. Through the program-provided Summary Report, users can quickly understand the overall design status of each strip at a glance, while the Word-based Detail Report provides clear and transparent verification through detailed calculation procedures for each Design Section.

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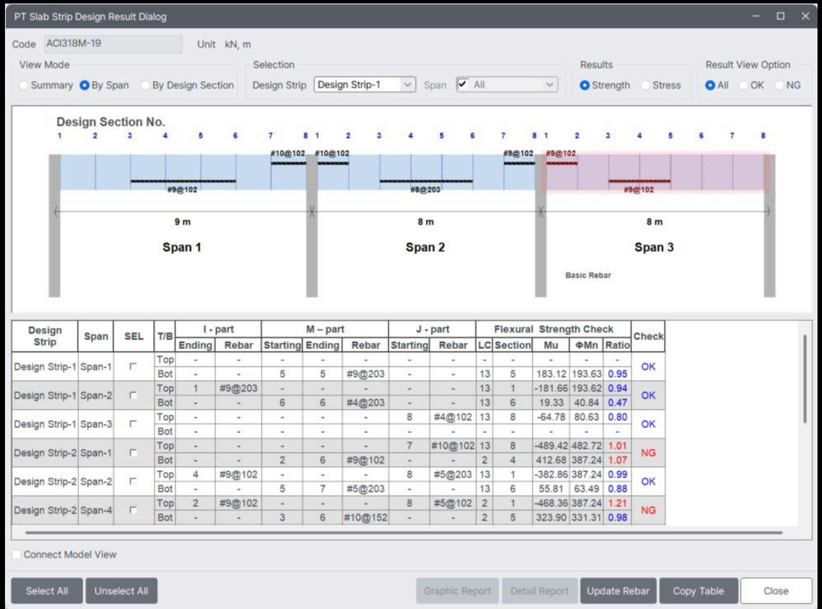
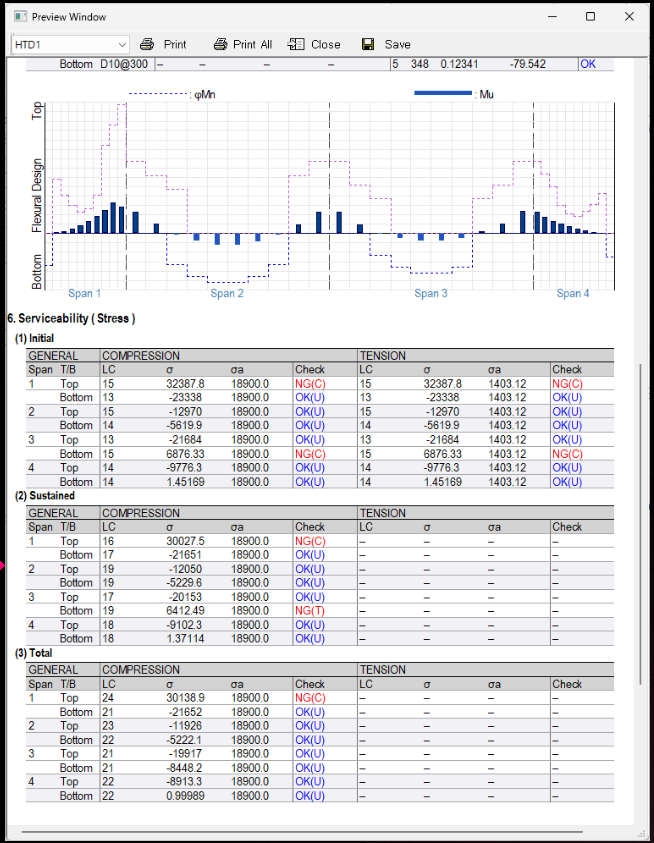
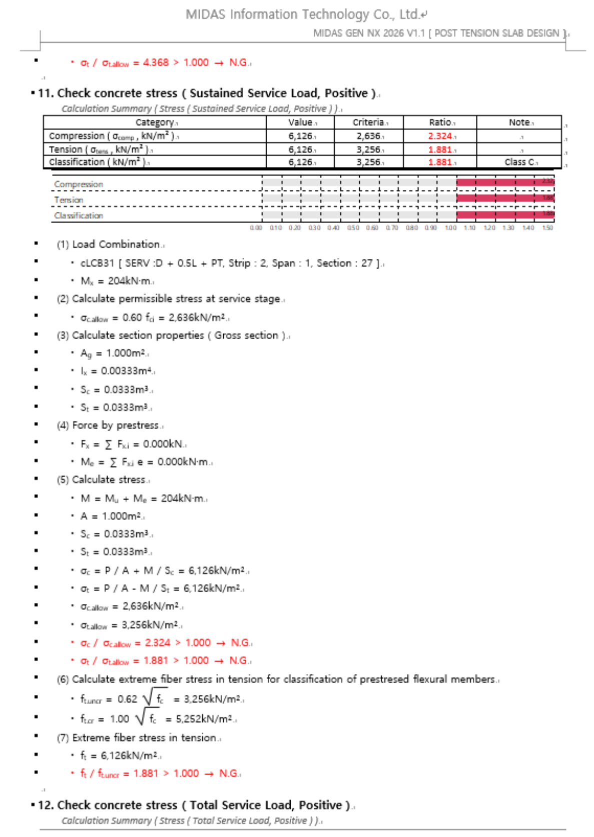


Strip Design Summary Report



Design Section Detail Report



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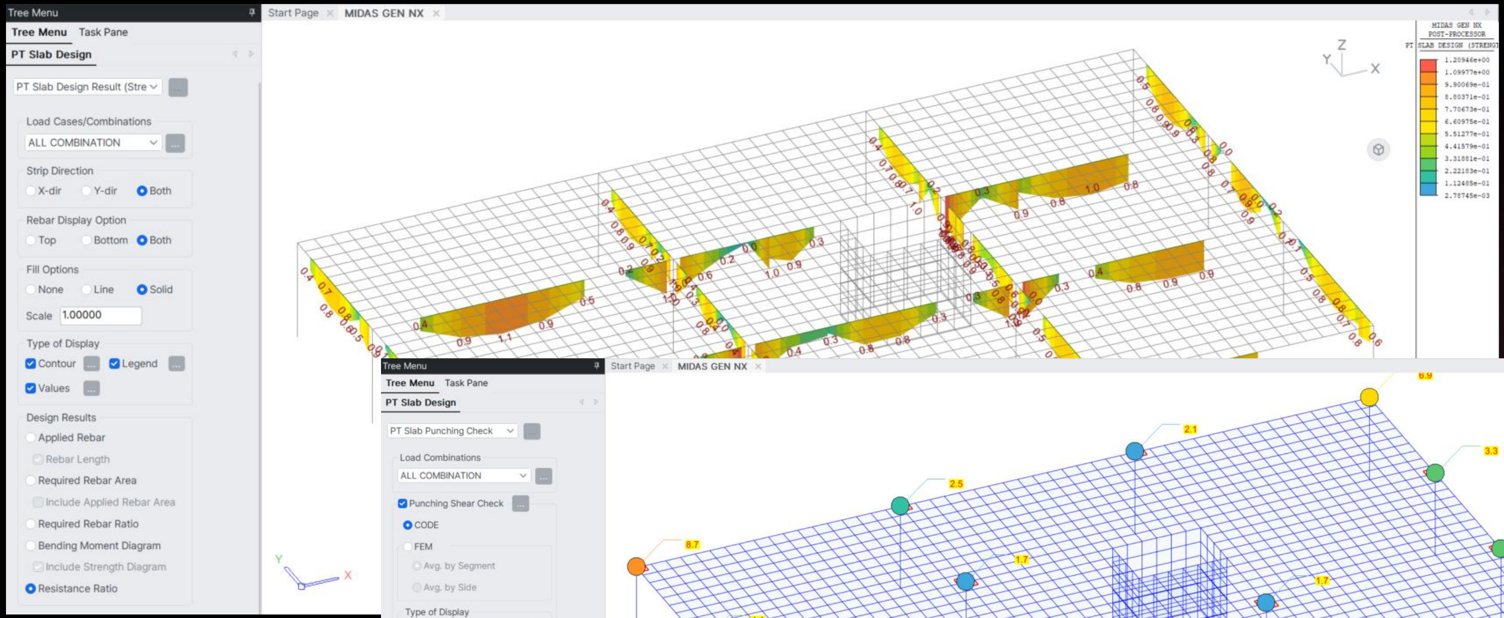
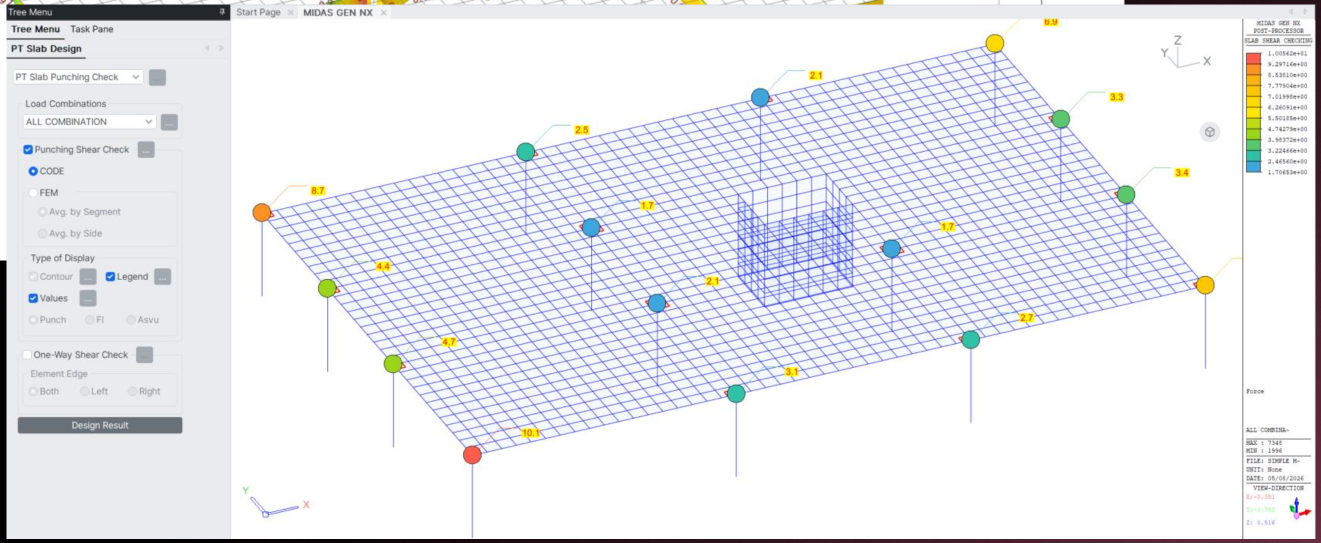
- Comprehensive PT Slab Design Review Tools

Various Design Result Features in Graphic Format on Model View

The design verification results can be reviewed directly in the Model View through various graphical result displays, including reinforcement layout, required/provided As, Demand/Capacity ratios, and Stress/Limit checks, enabling users to analyze the results from multiple perspectives. In addition, punching shear checks considering the shear effects induced by prestress are also supported.

Strength Design Results in Model View





Punching Shear Check in Model View

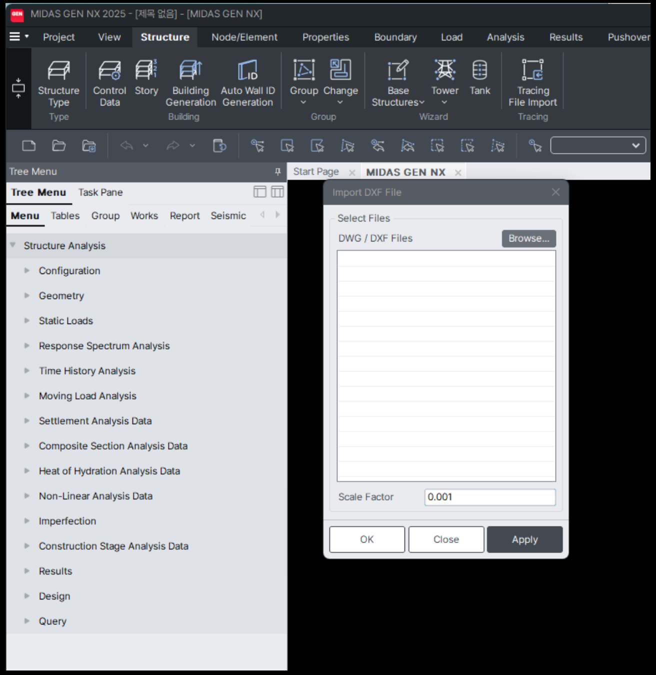
02 Enhanced Tracing-based Modeling

- CAD-Based Modeling
- Layer Classification
- Auto Member Generation

Connect and use CAD drawings directly within GEN NX

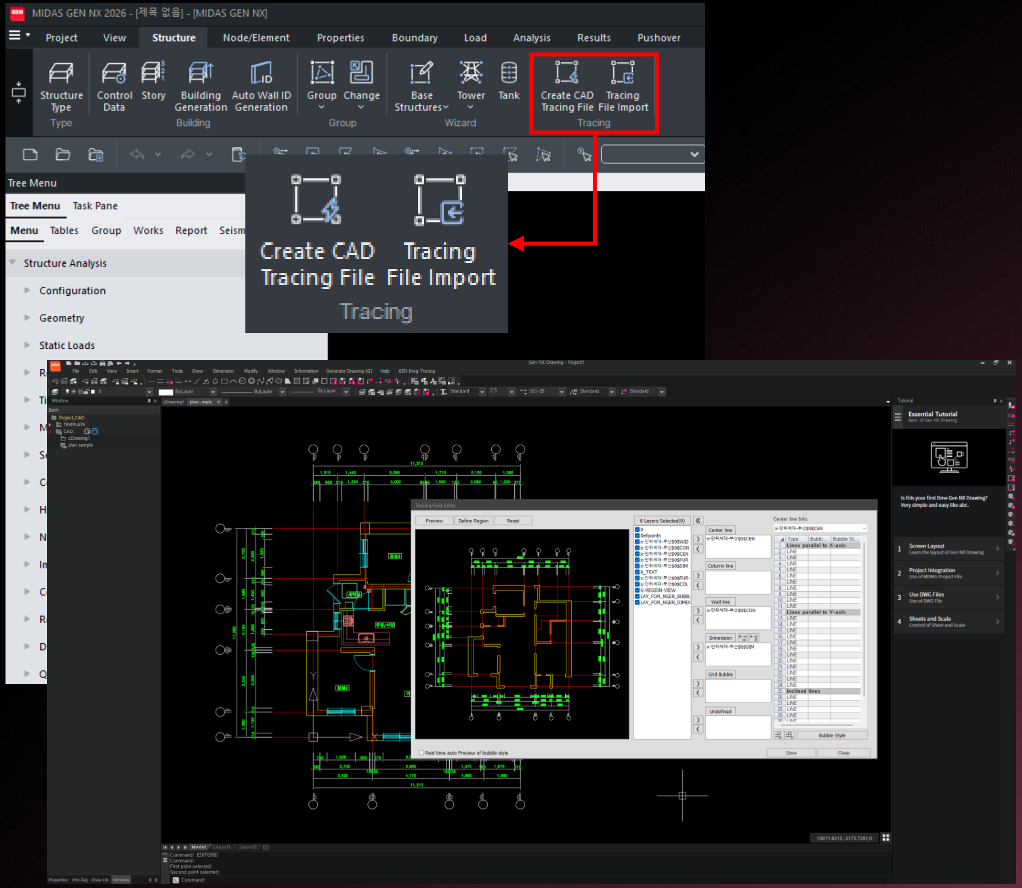
CAD drawings can be directly linked and opened within GEN NX without pre-processing.
This enables a faster and more seamless modeling workflow by working directly on the original drawings.

Before



- Dwg import with manual story alignment

After



- Direct MIDAS Drawing linkage within GEN NX

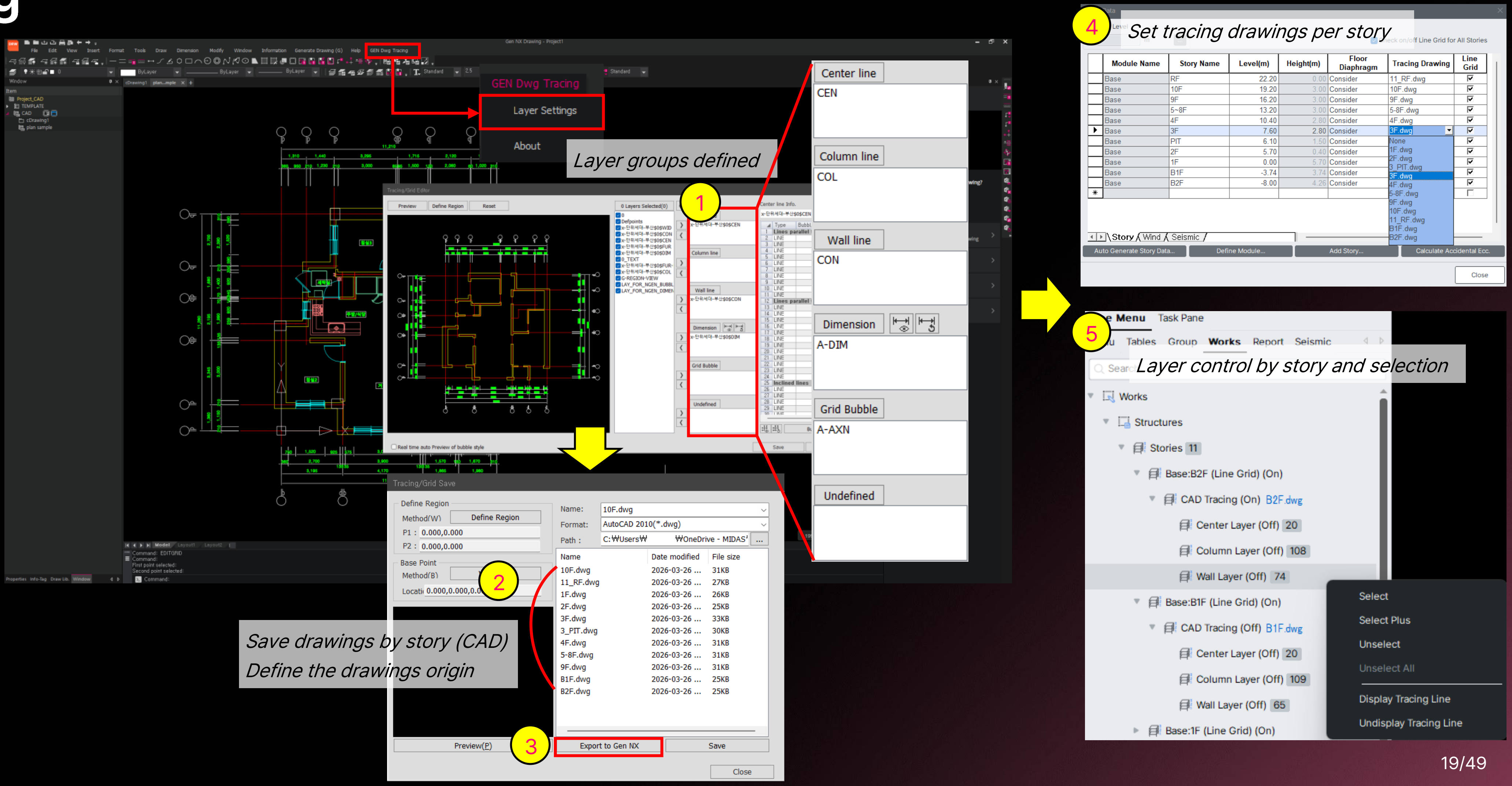
MIDAS

02 Enhanced Tracing-based Modeling

Organize and control layers for efficient modeling

Layer groups defined in CAD can be used directly in GEN NX to control visibility and selection by story and layer.
This allows users to manage drawings more systematically within a single environment.
Drawings can also be organized by story, with user-defined origins for each story to ensure consistent alignment.

- CAD-Based Modeling
- Layer Classification
- Auto Member Generation



MIDAS

02 Enhanced Tracing-based Modeling

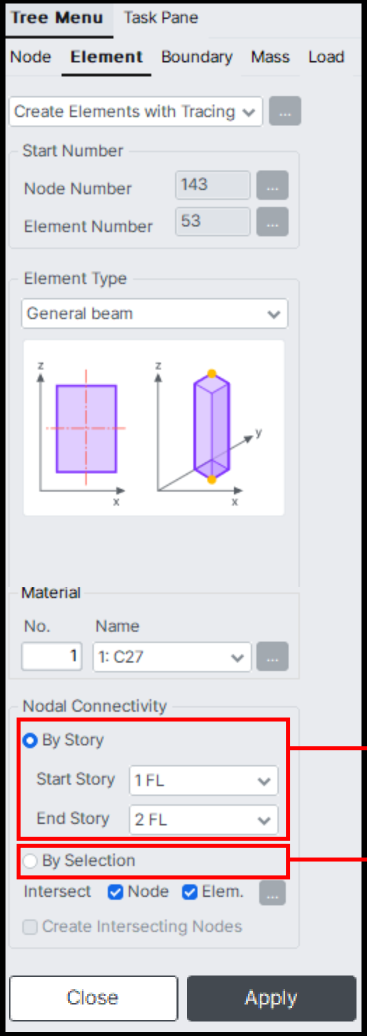
- CAD-Based Modeling
- Layer Classification
- Auto Member Generation

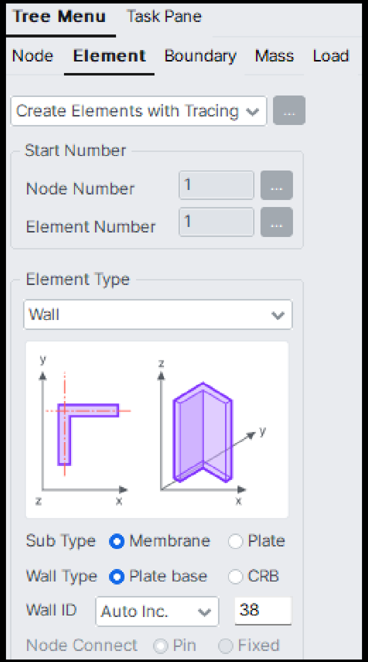
Automatically generate vertical members based on story data

Columns and walls can be generated automatically using story information.
Users can select elements through drag actions or the works tree, and generate members across multiple stories at once.
This reduces repetitive manual work and enables faster creation of the initial structural model.

Improvement points

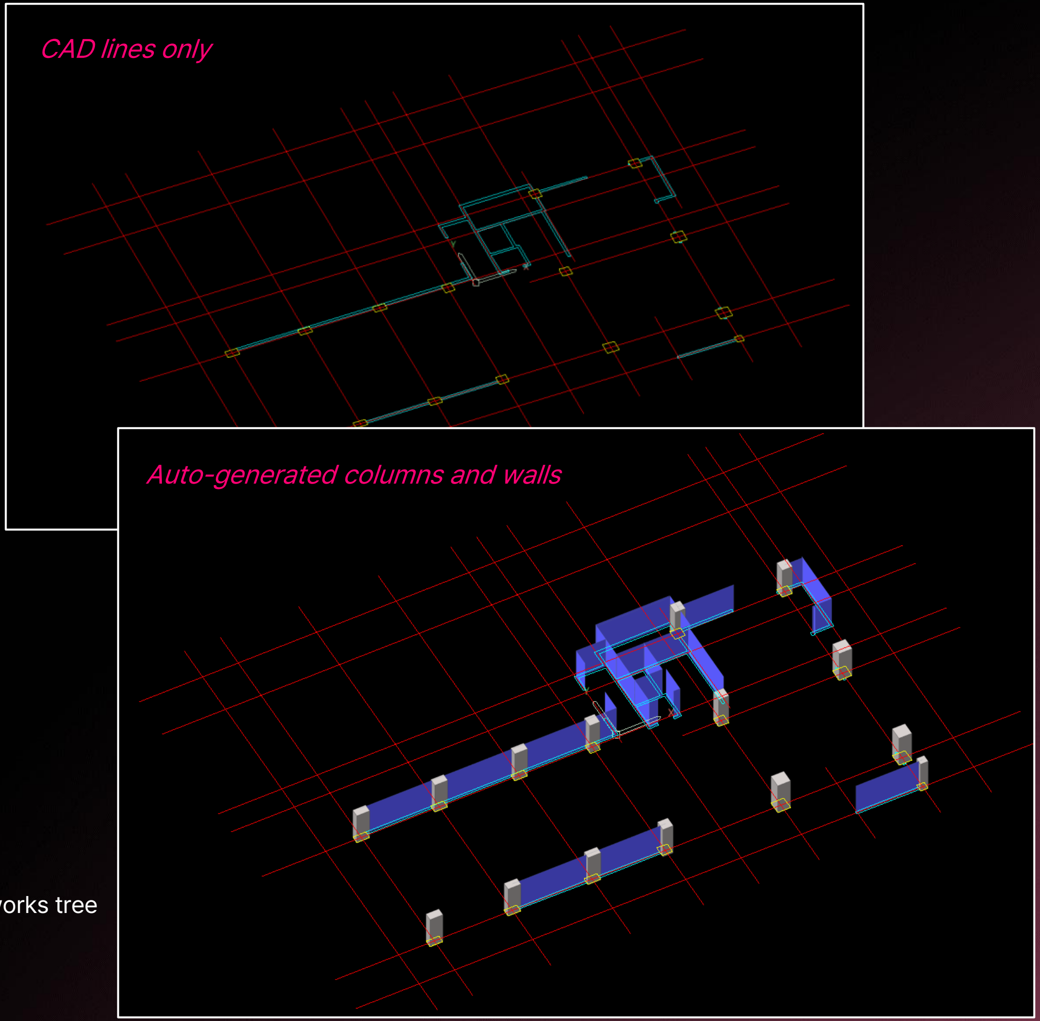
- Generate columns and walls automatically
- Story-based and selection-based generation
- Member properties auto-defined from CAD geometry





Story-based generation
- Define Start-End stories

Selection-based generation
- Drag in display or Select via works tree

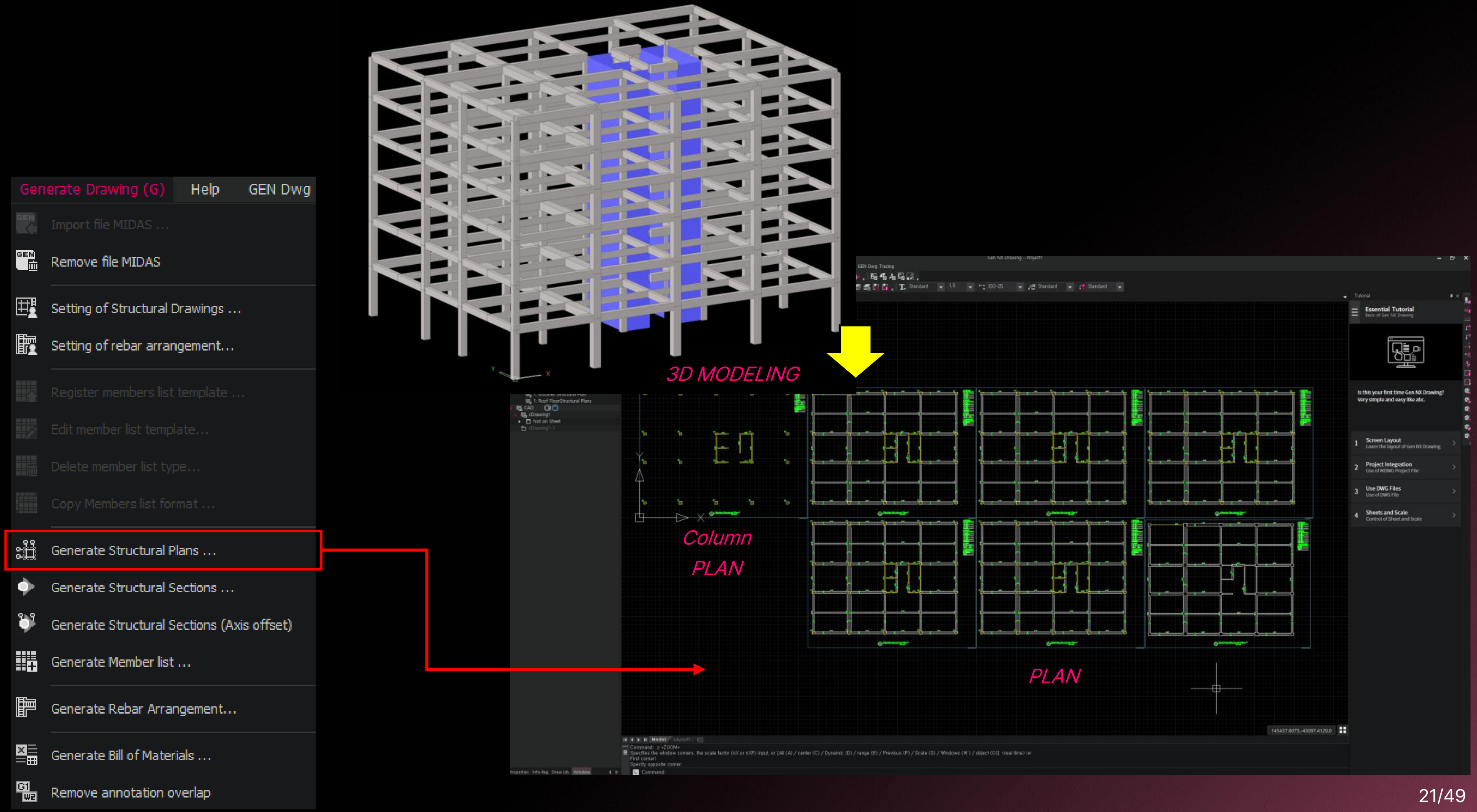


02 Enhanced Tracing-based Modeling

- Drawing Auto Generation
- Drawing & Rebar Settings
- Generated Drawings
- Bill of Materials & Quantity Takeoff

Auto generate structural drawings from your analysis model

Create DWG drawings directly from GEN NX design data using MIDAS Drawing.
Ensures high-level data consistency between the analysis model and the final drawings while drastically reducing time spent on repetitive CAD tasks.

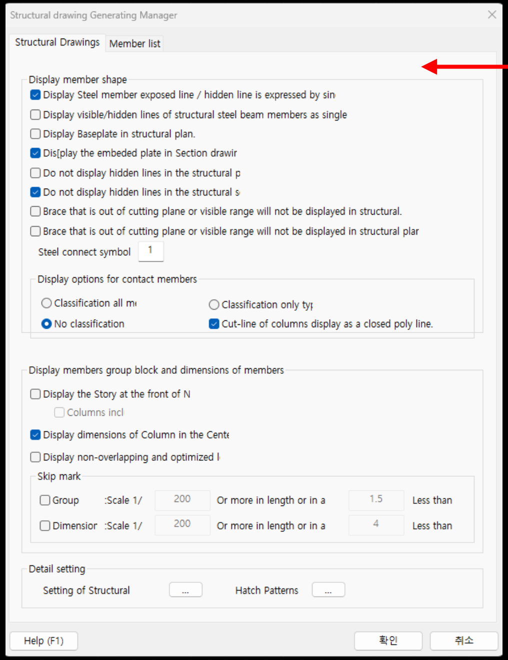


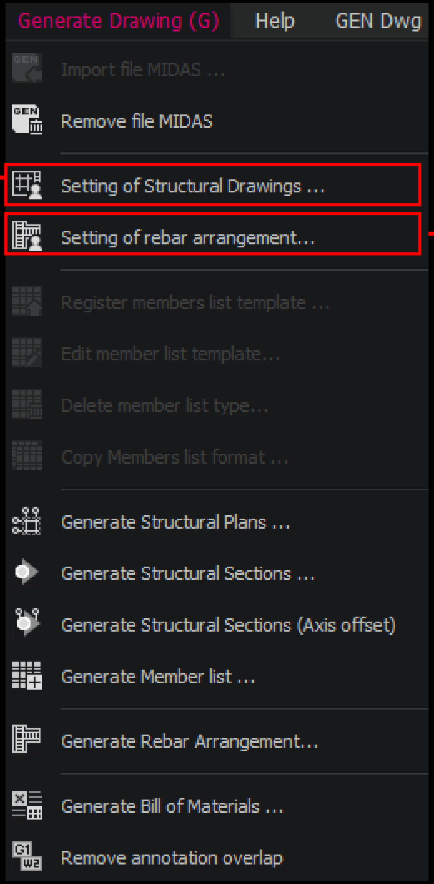
02 Enhanced Tracing-based Modeling

Configure Drawing and Rebar Standards for Your Design Workflow

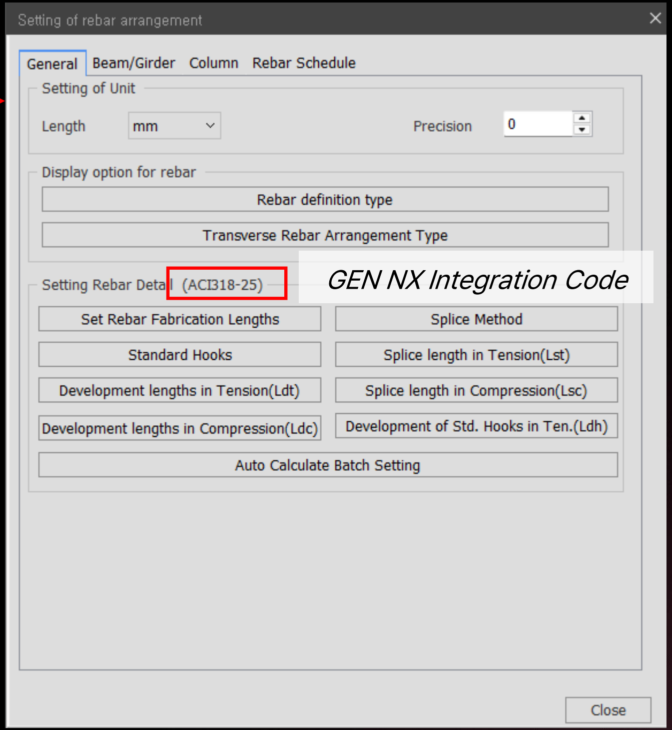
Customize drawing representation and rebar detailing settings to match project requirements.
Users can define layer display styles, member group blocks, dimension annotations, and hatch patterns for drawings.
Rebar settings automatically follow the design code defined in GEN NX, applying code-based bar sizes, development lengths, and splice lengths, while still allowing user modifications to suit specific design intentions and project standards.

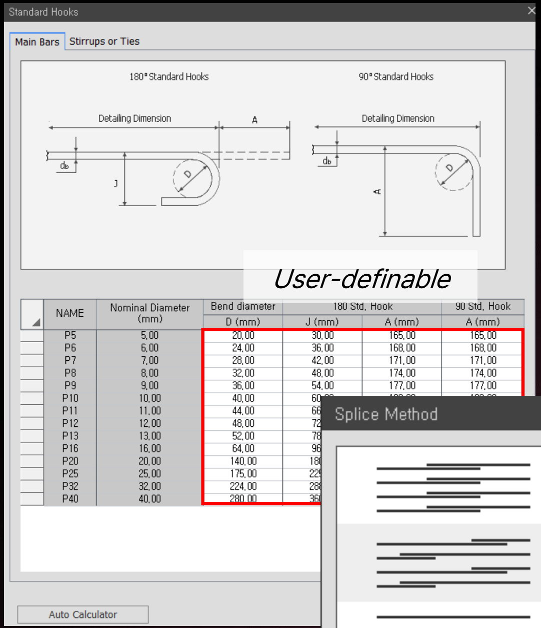
- Drawing Auto Generation
- Drawing & Rebar Settings
- Generated Drawings
- Bill of Materials & Quantity Takeoff

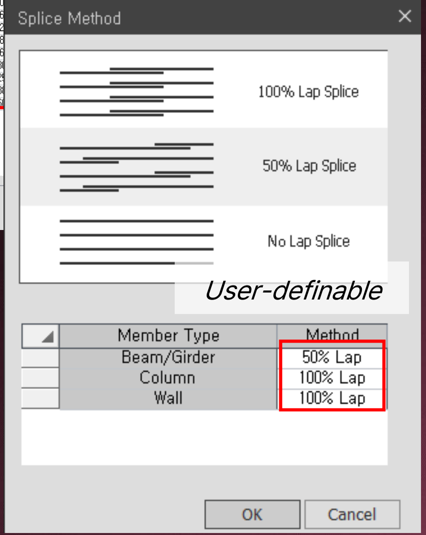




Supported Design Codes
ACI318-25,19,14
ACI318M-19,14
TWN-USD112
NSCP 2015





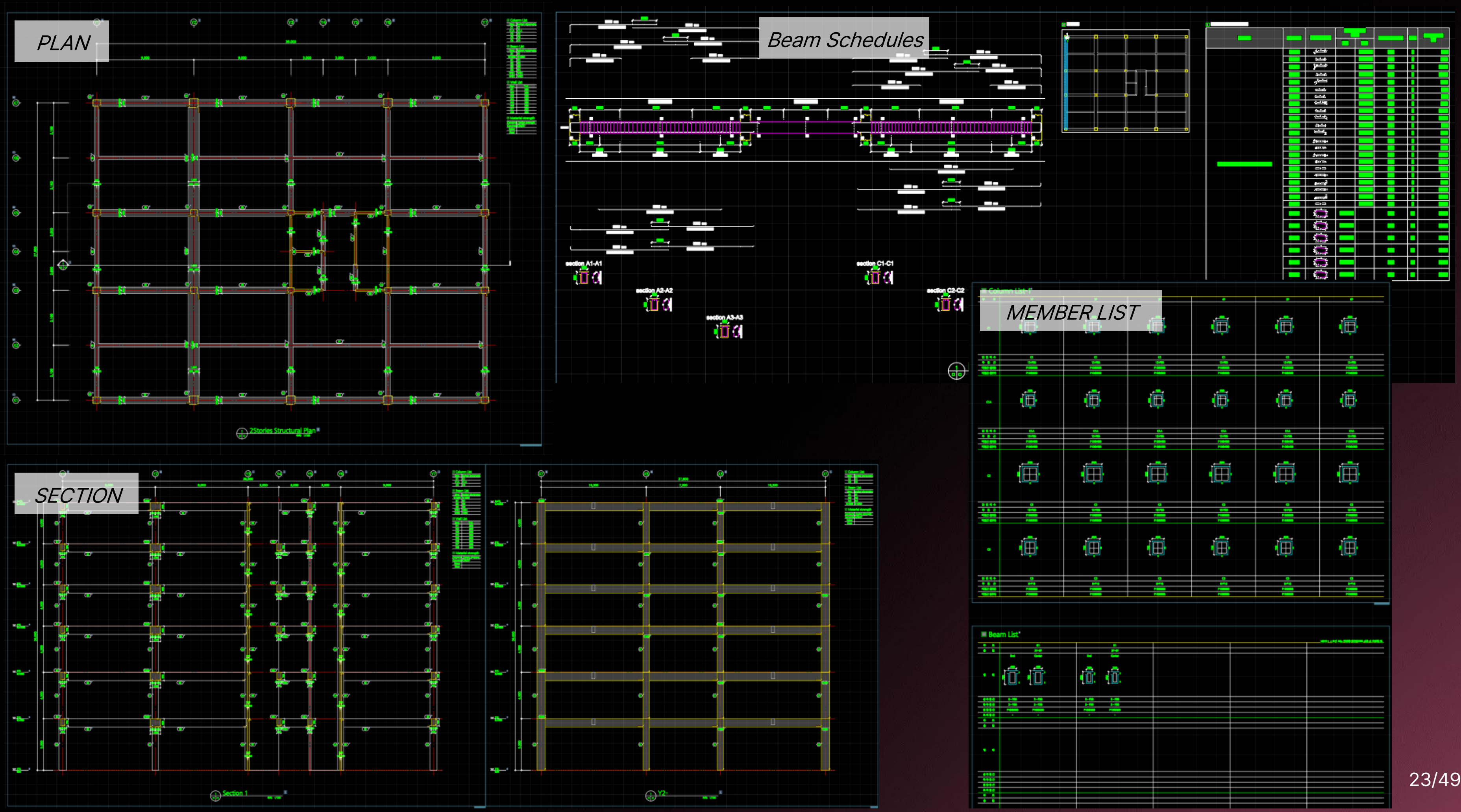


03 Generation of Structural Drawings

- Drawing Auto Generation
- Drawing & Rebar Settings
- Generated Drawings
- Bill of Materials & Quantity Takeoff

Automatically Generate Structural and Rebar Drawings

Automatically generate structural plans, framing elevations, section drawings, and RC/Steel member schedules based on predefined settings. Reinforcement detailing drawings can also be created directly from GEN NX rebar data, including development lengths, splice lengths, and bar quantities. Drawing templates can be customized to match user standards.

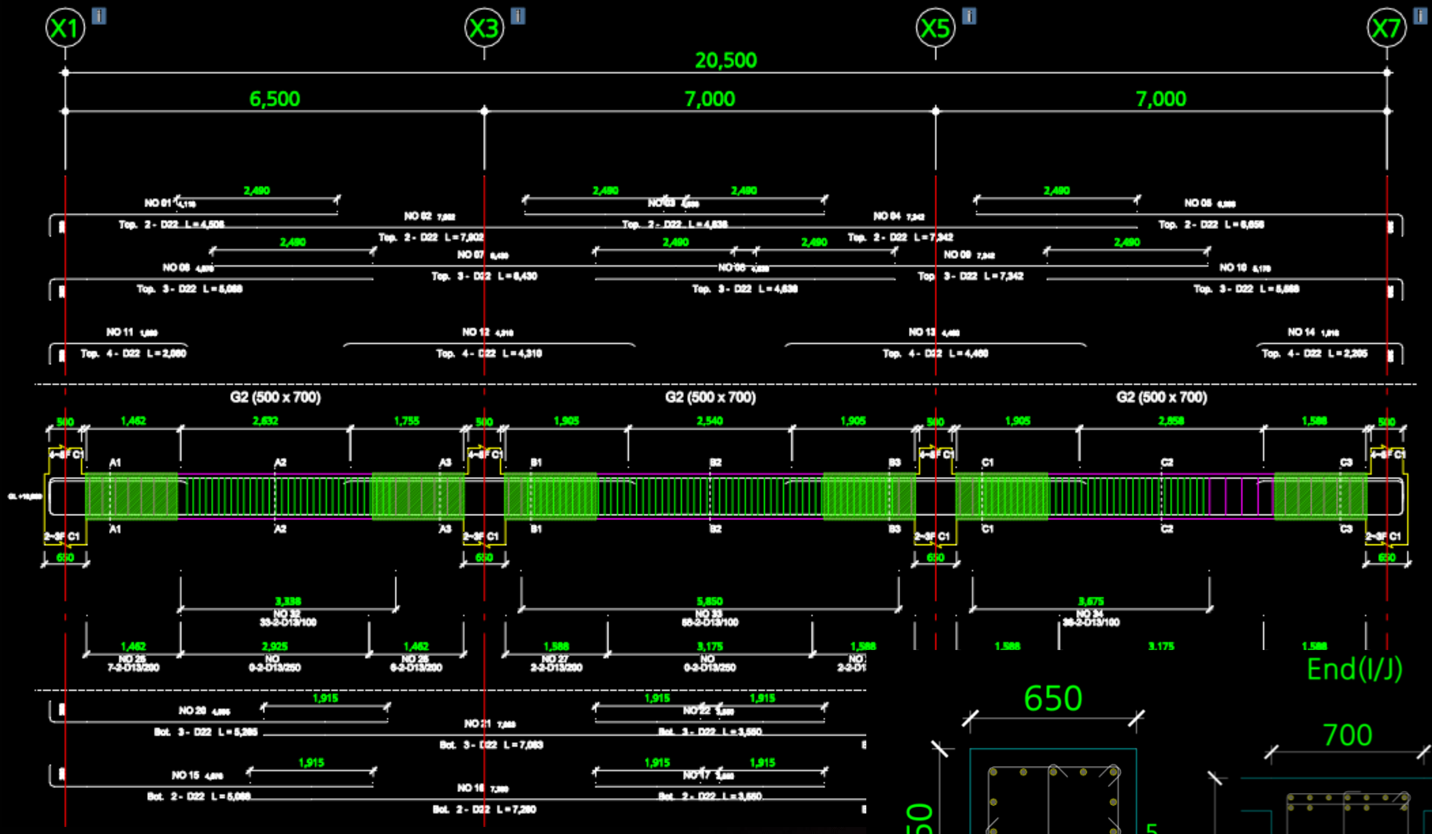


03 Generation of Structural Drawings

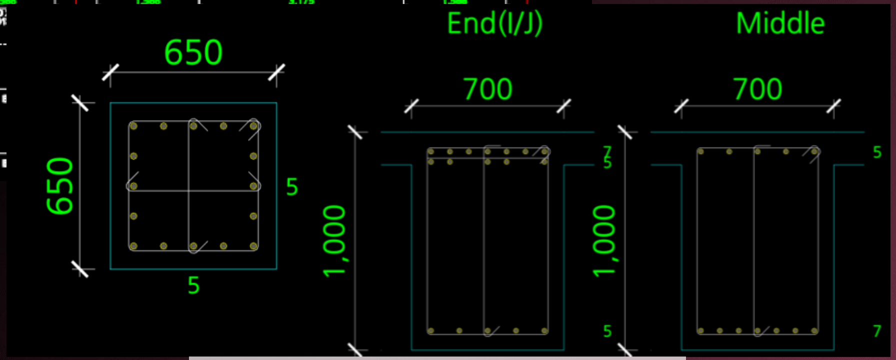
- Drawing Auto Generation
- Drawing & Rebar Settings
- Generated Drawings
- Bill of Materials & Quantity Takeoff

Seismic-Compliant Reinforcement Drawings

Automatically generate beam reinforcement drawings in compliance with seismic and non-seismic design requirements. Reinforcement details such as development lengths, lap splice lengths, seismic hooks, and transverse reinforcement layouts are automatically incorporated into the generated drawings.



Beam Schedules (Plastic Hinge Region)



Beam/Column Hook Confinement

03 Generation of Structural Drawings

- Drawing Auto Generation
- Drawing & Rebar Settings
- Generated Drawings
- Bill of Materials & Quantity Takeoff

Key points
- Model-Based Quantity Takeoff
- User-defined Quantity Filtering
- Supports Quantity Review

Automatic Quantity Takeoff for RC and Steel Structure

Generate quantity reports directly from the structural model flexible and reporting options.

RC Concrete, Formwork, and Rebar Quantity Calculation

RC BOM Tables

Number of stories	Item	Concrete (m³)	Rebar (ton)				Mold (m³)	Remarks
		30(MPa)	HD10	HD22	HD25	HD32		
Roof	Beam	254.677	4.532	36.766	-	-	1,513.915	
	Column	-	-	-	-	-	-	
	Slab	-	-	-	-	-	-	
	Wall	-	-	-	-	-	-	
	Bracing	-	-	-	-	-	-	
	Stair	-	-	-	-	-	-	
5F	Beam	240.979	5.316	35.709	-	-	1,487.600	
	Column	65.340	1.460	-	10.102	10.420	429.300	
	Slab	-	-	-	-	-	-	
	Wall	125.833	-	-	-	-	1,278.072	
	Bracing	-	-	-	-	-	-	
	Stair	-	-	-	-	-	-	
4F	Beam	288.358	6.268	42.693	-	-	1,780.296	
	Column	70.596	1.434	-	9.714	10.055	424.040	
	Slab	-	-	-	-	-	-	
	Wall	119.139	-	-	-	-	1,209.790	
	Bracing	-	-	-	-	-	-	
	Stair	-	-	-	-	-	-	
3F	Beam	295.792	6.463	43.922	-	-	1,816.176	
	Column	75.708	1.434	-	9.714	10.055	456.060	
	Slab	-	-	-	-	-	-	
	Wall	128.739	-	-	-	-	1,309.531	
	Bracing	-	-	-	-	-	-	
	Stair	-	-	-	-	-	-	
2F	Beam	412.617	8.854	59.329	-	-	2,489.739	
	Column	90.360	1.434	-	9.714	10.055	545.590	
	Slab	-	-	-	-	-	-	
	Wall	146.764	-	-	-	-	1,490.461	
	Bracing	-	-	-	-	-	-	
	Stair	-	-	-	-	-	-	
1F	Beam	384.426	7.620	46.759	-	-	2,404.963	
	Column	109.908	1.581	-	10.860	11.150	645.070	
	Slab	-	-	-	-	-	-	
	Wall	290.068	-	-	-	-	2,879.313	
	Bracing	-	-	-	-	-	-	
	Stair	-	-	-	-	-	-	
Sum		3,099.304	46.396	265.178	50.104	51.735	22,159.915	
		3,099.304	413.413					

STEEL Steel Quantity Reports by Length, Area, and Weight

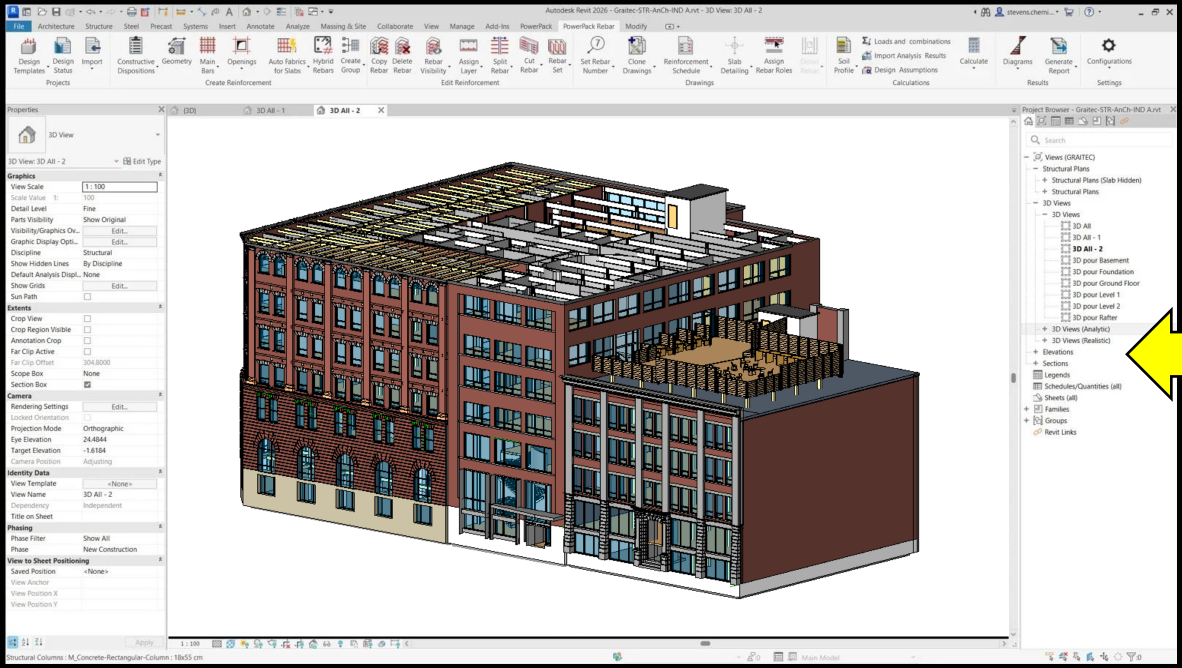
Steel BOM Tables

Section steel	Material	Length (m)	Area (m²)		Weight (ton)	Remarks
			Internal	External		
2 SG1	SS275	18.663	-	25.866	0.925	
Rod bar	SS275	210.662	-	10.589	0.332	
SB0	SS275	82.050	-	81.065	2.426	
SB1	SM355	78.000	-	200.772	14.420	
SC1	SM355	34.300	-	67.371	4.310	
SG11	SM355	53.100	-	136.679	9.816	
SG1	SS275	38.200	-	67.996	3.425	
SG2	SM355	38.900	-	100.129	7.191	
Sum		553.874	-	690.468	42.845	

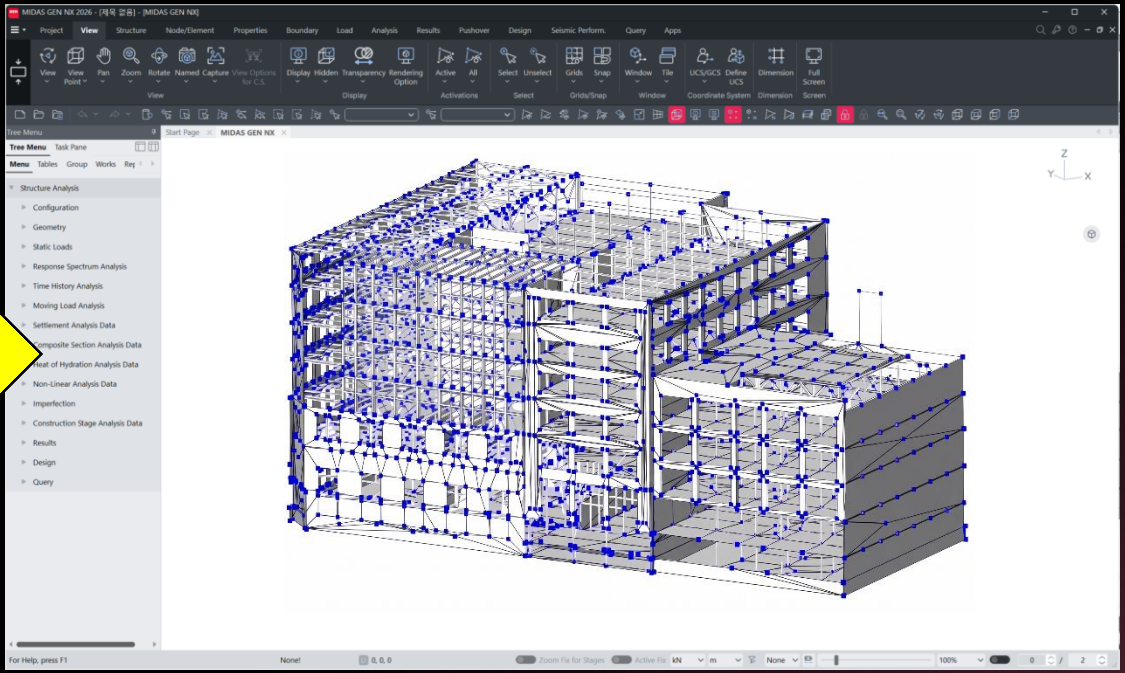
04 Interface with Revit 2026

Bidirectional model synchronization with the latest Revit versions

The GEN NX Revit Interface has been updated to support Revit 2025/2026 and the mgbx file format, enabling bidirectional model integration between Revit and GEN NX.



Revit 2025 / 2026



GEN NX

- Compatibility - Full support for Revit 2025/2026 and GEN NX mgbx format.
- Bidirectional Workflow - Import from Revit and synchronize updates back to Revit.
- Efficiency - Maintain data consistency without repetitive modeling.

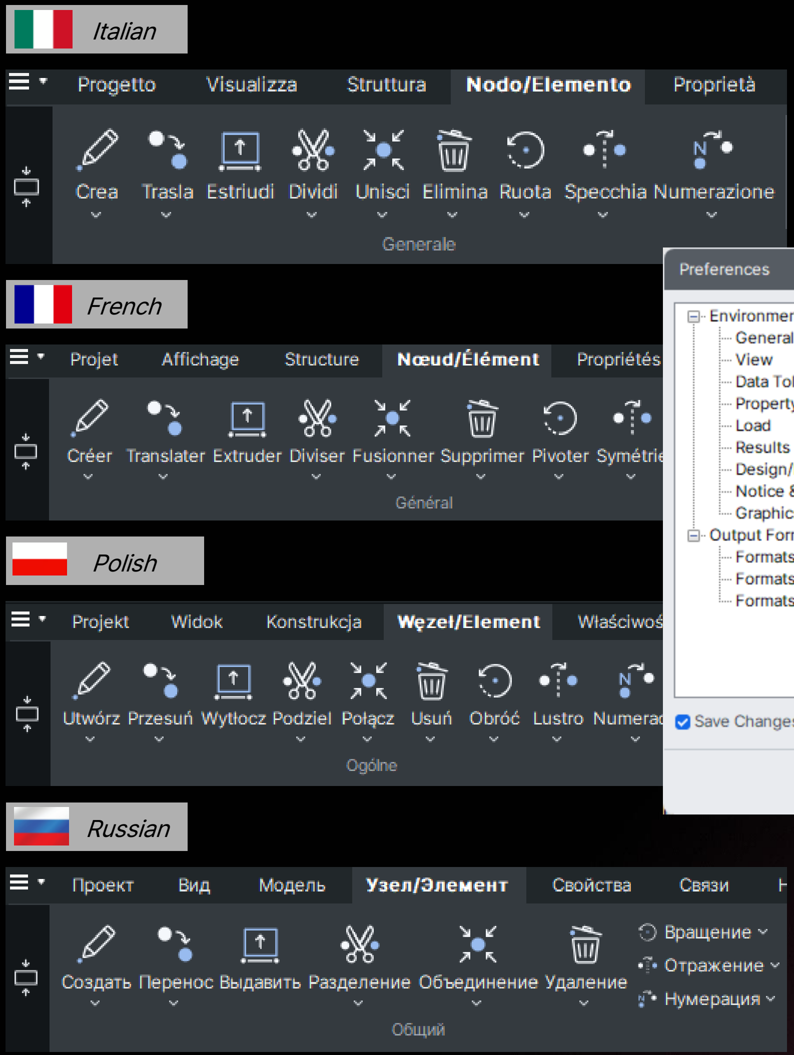
05 Multilingual User Interface

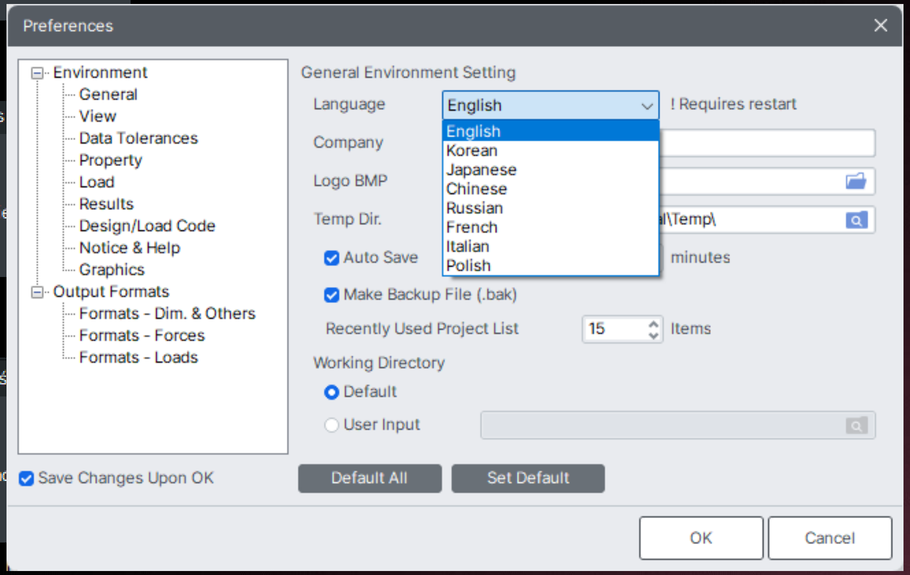
Work in native language with multilingual UI

The GEN NX interface, previously available only in English, now supports switching to 6 languages through a multilingual database. This improves usability and enables users to work more efficiently in their preferred language.

Newly Supported Languages

- Italian
- Polish
- French
- Russian
- Chinese
- Japanese
- Korean





Language Setting in Preference

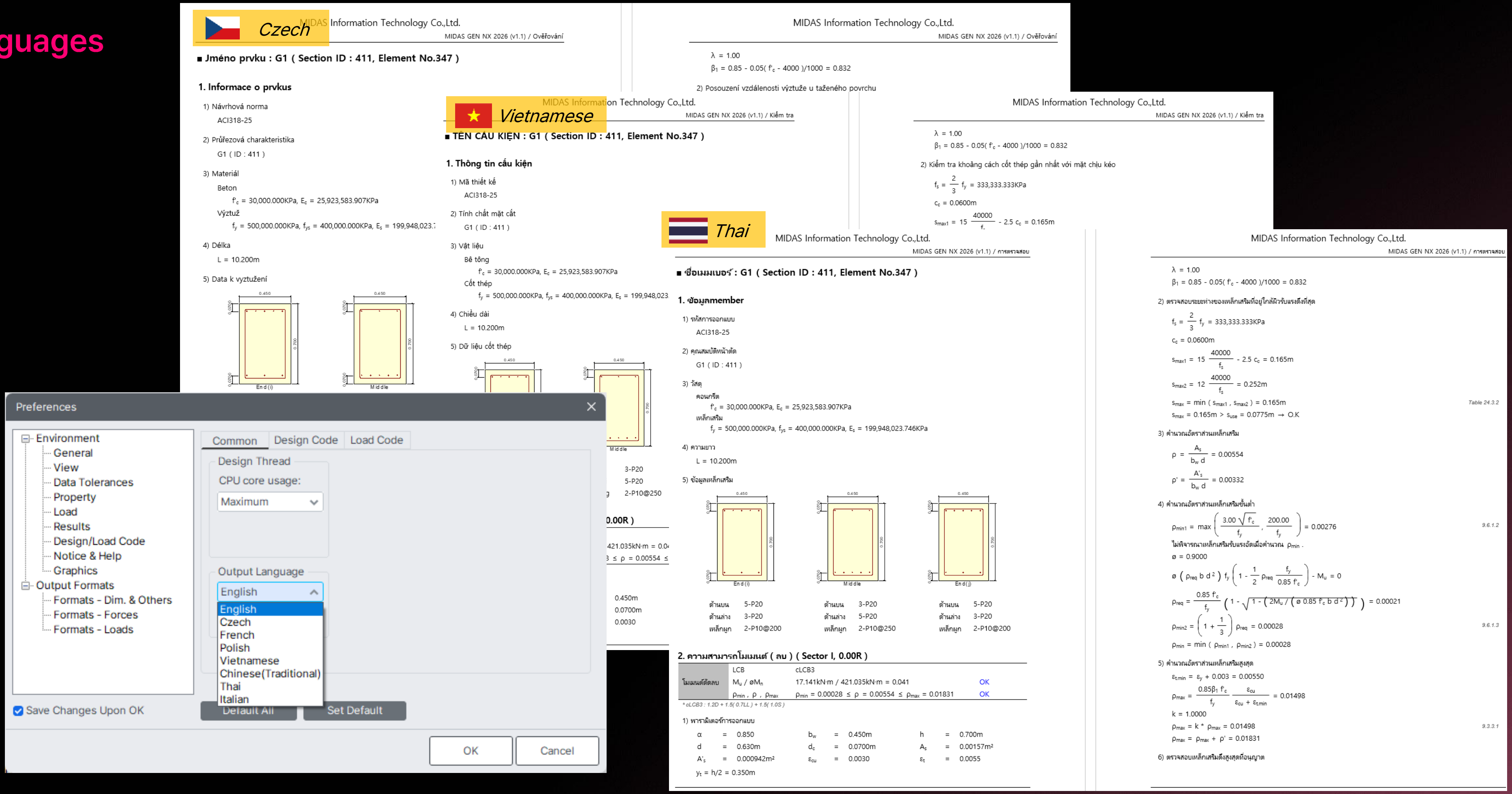
05 Multilingual Design Report

Generate design reports in multiple languages

Design reports can be generated in 7 different languages.
This enables direct use of analysis and design results without additional translation.

Newly Supported Languages

- Italian
- Polish
- French
- Czech
- Chinese (Traditional)
- Vietnamese
- Thai



06 Eurocode National Annex - 24 countries

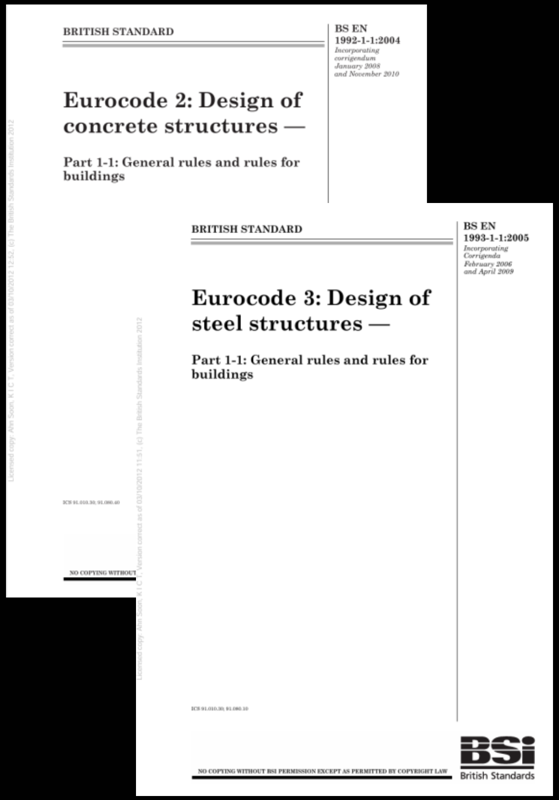
- Design Code
- Apply NA Parameters
- Generate Results

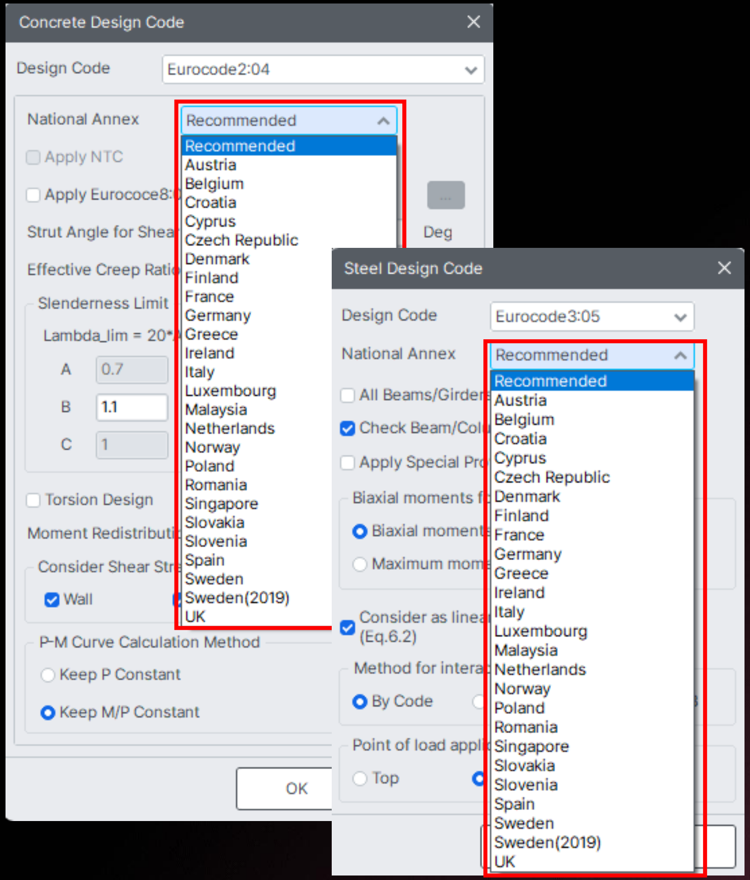
Convenient design with local parameters according to Eurocode NA

By incorporating the National Annexes of multiple countries using Eurocode, users can perform load combinations and design checks immediately by simply selecting the corresponding country's NA code, without manually adjusting parameters.

The supported design scope includes:

- Eurocode 2:2004 – RC Design and Meshed Slab/Wall/Shell Design
- Eurocode 3:2005 – Steel Design
- Eurocode 3-1-3:2006 – Cold-formed Steel Design





Country	Code	EC2	EC3
Austria	AUT	O	O
Belgium	BEL	O	O
Croatia	CRO	O	O
Cyprus	CYP	O	O
Czech	CZE	O	O
Denmark	DNK	O	O
Finland	FIN	O	O
France	FRA	O	O
Germany	DEU	O	O
Greece	GRC	O	O
Ireland	IRL	O	O
Italy	ITA	O	O
Luxembourg	LUX	O	O
Malaysia	MYS	O	O
Netherlands	NLD	O	O
Norway	NOR	O	O
Poland	POL	O	O
Romania	ROU	O	O
Singapore	SGP	O	O
Slovakia	SVK	O	O
Slovenia	SVN	O	O
Spain	ESP	O	O
Sweden	SWE	O	O
UK	GBR	O	O

06 Eurocode National Annex - 24 countries

- Design Code
- Apply NA Parameters
- Generate Results

Detailed Compliance based on Nation Annex Provisions

This feature enables high-precision verification at the clause level by incorporating specific parameters defined in each country's National Annex. It ensures that structural designs strictly adhere to localized regulatory requirements within the Eurocode framework.

Extensive Coverage : Support for 24 countries' National Annexes.
Automated Detailing : Automatic application of safety factors and material properties.
User Flexibility : Manual override possible for specific engineering judgments.

Note 1: The value of ν_1 and α_{cw} for use in a Country may be found in its National Annex. The recommended value of ν_1 is ν (see Expression (6.6N)).

Note 2: If the design stress of the shear reinforcement is below 80% of the characteristic yield stress f_{yk}, ν_1 may be taken as:

$\nu_1 = 0,6$ for $f_{ck} \leq 60$ MPa (6.10.aN)

$\nu_1 = 0,9 - f_{ck}/200 > 0,5$ for $f_{ck} \geq 60$ MPa (6.10.bN)

Recommended

NDP Zu 6.2.3 (3)

$\nu_1 = 0,75 \cdot \nu_2$

$\nu_2 = (1,1 - f_{ck} / 500) \leq 1,0$

$\alpha_{cw} = 1,0$

Die Gleichungen (6.10N) und (6.11N) sind nicht zu anzuwenden.

Germany

- Modified ν_2-based reduction formula
- Additional reduction factor applied

MIDAS

06 Eurocode National Annex - 24 countries

- Design Code
- Apply NA Parameters
- Generate Results

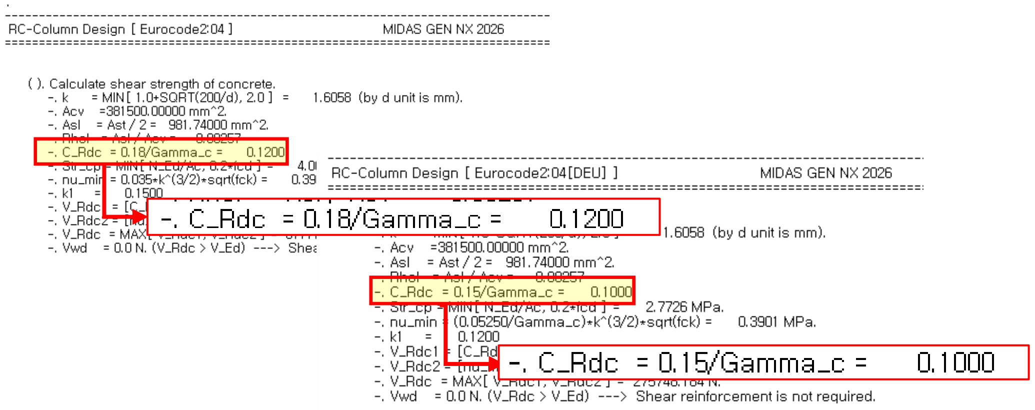
National Annex impact on design results

Verify localized design parameters within final structural safety reports and output values. Additionally, load combination factors can be automatically applied during generation.

- Concrete

Recommended : 0.18/γc

Germany : 0.15/γc



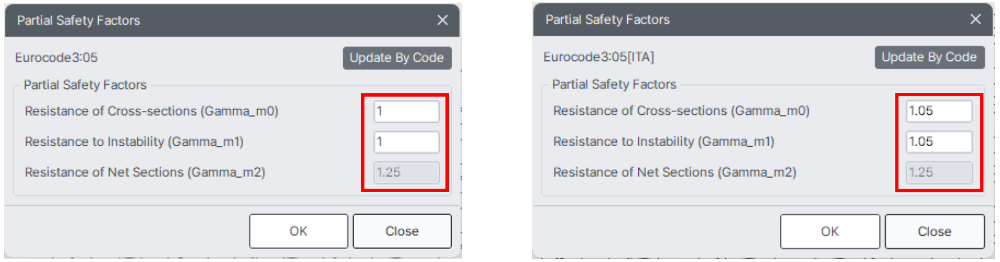
- Steel & Cold-formed Steel

Recommended

γM0=1.00 / γM1=1.00 / γM2=1.25

Italy

γM0=1.05 / γM1=1.05 / γM2=1.25



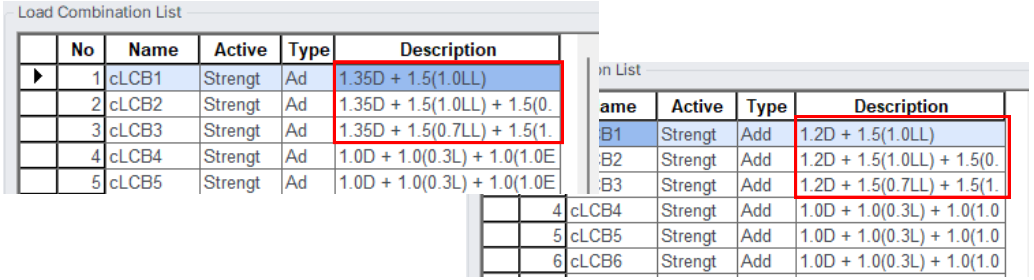
- Load Combination (EN 1990)

Recommended

γG=1.35 / γQ=1.50

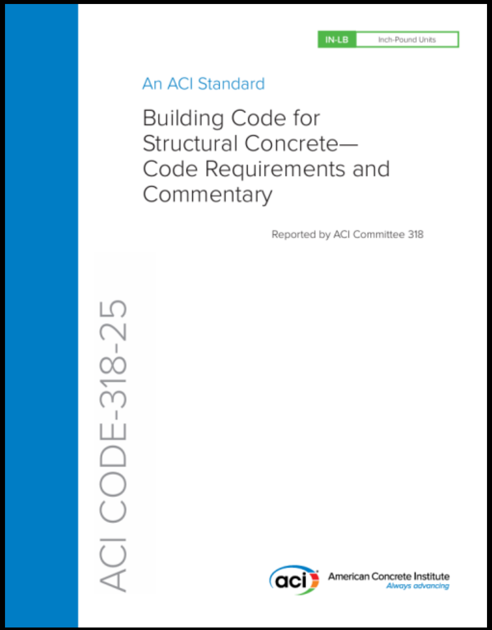
Denmark

γG=1.20 / γQ=1.50



MIDAS

07 Update Design Standard : ACI 318-25



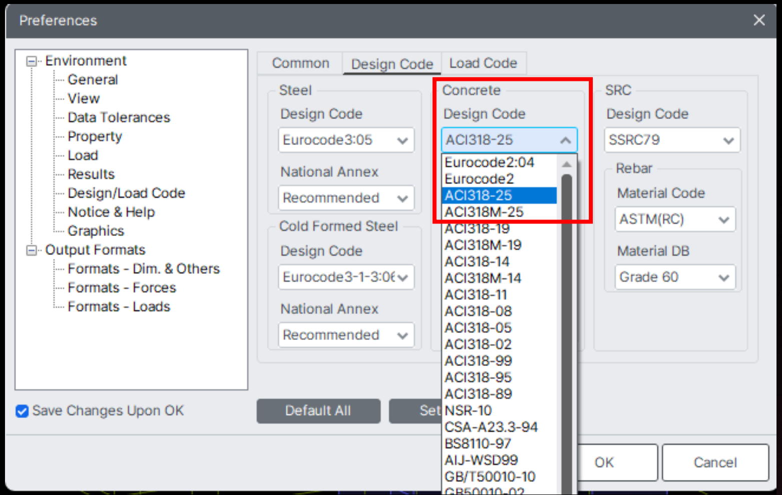
ACI318-25

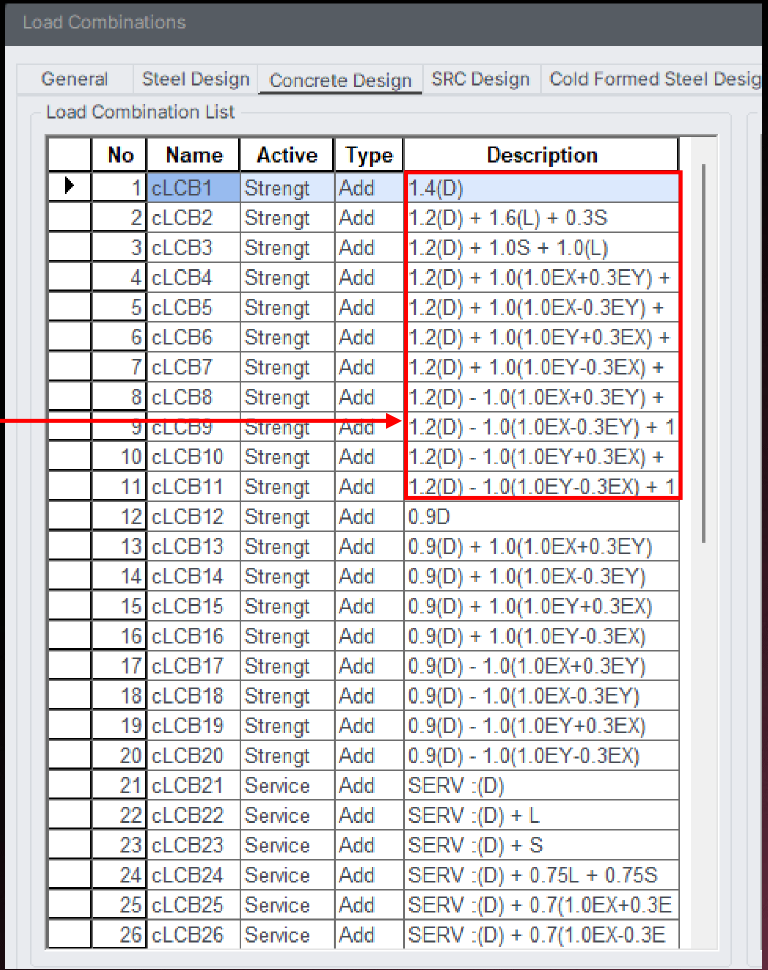
Design updates aligned with ACI 318-25 provisions

The ACI 318-25 design standard has been applied to RC and Meshed Slab design. The automatic generation of load combinations is now supported in accordance with ACI 318-25 provisions.

Table 5.3.1—Load combinations

Load combination	Equation	Primary load
$U = 1.4D$	(5.3.1a)	D
$U = 1.2D + 1.6L + (0.5L_r \text{ or } 0.3S \text{ or } 0.5R)$	(5.3.1b)	L
$U = 1.2D + (1.6L_r \text{ or } 1.0S \text{ or } 1.6R) + (1.0L \text{ or } 0.5W)$	(5.3.1c)	L_r or S or R
$U = 1.2D + 1.0W + 1.0L + (0.5L_r \text{ or } 0.3S \text{ or } 0.5R)$	(5.3.1d)	W
$U = 1.2D + 1.0E + 1.0L + 0.15S$	(5.3.1e)	E
$U = 0.9D + 1.0W$	(5.3.1f)	W
$U = 0.9D + 1.0E$	(5.3.1g)	E





No	Name	Active	Type	Description
1	cLCB1	Strengt	Add	1.4(D)
2	cLCB2	Strengt	Add	1.2(D) + 1.6(L) + 0.3S
3	cLCB3	Strengt	Add	1.2(D) + 1.0S + 1.0(L)
4	cLCB4	Strengt	Add	1.2(D) + 1.0(1.0EX+0.3EY) +
5	cLCB5	Strengt	Add	1.2(D) + 1.0(1.0EX-0.3EY) +
6	cLCB6	Strengt	Add	1.2(D) + 1.0(1.0EY+0.3EX) +
7	cLCB7	Strengt	Add	1.2(D) + 1.0(1.0EY-0.3EX) +
8	cLCB8	Strengt	Add	1.2(D) - 1.0(1.0EX+0.3EY) +
9	cLCB9	Strengt	Add	1.2(D) - 1.0(1.0EX-0.3EY) + 1
10	cLCB10	Strengt	Add	1.2(D) - 1.0(1.0EY+0.3EX) +
11	cLCB11	Strengt	Add	1.2(D) - 1.0(1.0EY-0.3EX) + 1
12	cLCB12	Strengt	Add	0.9D
13	cLCB13	Strengt	Add	0.9(D) + 1.0(1.0EX+0.3EY)
14	cLCB14	Strengt	Add	0.9(D) + 1.0(1.0EX-0.3EY)
15	cLCB15	Strengt	Add	0.9(D) + 1.0(1.0EY+0.3EX)
16	cLCB16	Strengt	Add	0.9(D) + 1.0(1.0EY-0.3EX)
17	cLCB17	Strengt	Add	0.9(D) - 1.0(1.0EX+0.3EY)
18	cLCB18	Strengt	Add	0.9(D) - 1.0(1.0EX-0.3EY)
19	cLCB19	Strengt	Add	0.9(D) - 1.0(1.0EY+0.3EX)
20	cLCB20	Strengt	Add	0.9(D) - 1.0(1.0EY-0.3EX)
21	cLCB21	Service	Add	SERV :(D)
22	cLCB22	Service	Add	SERV :(D) + L
23	cLCB23	Service	Add	SERV :(D) + S
24	cLCB24	Service	Add	SERV :(D) + 0.75L + 0.75S
25	cLCB25	Service	Add	SERV :(D) + 0.7(1.0EX+0.3E
26	cLCB26	Service	Add	SERV :(D) + 0.7(1.0EX-0.3E

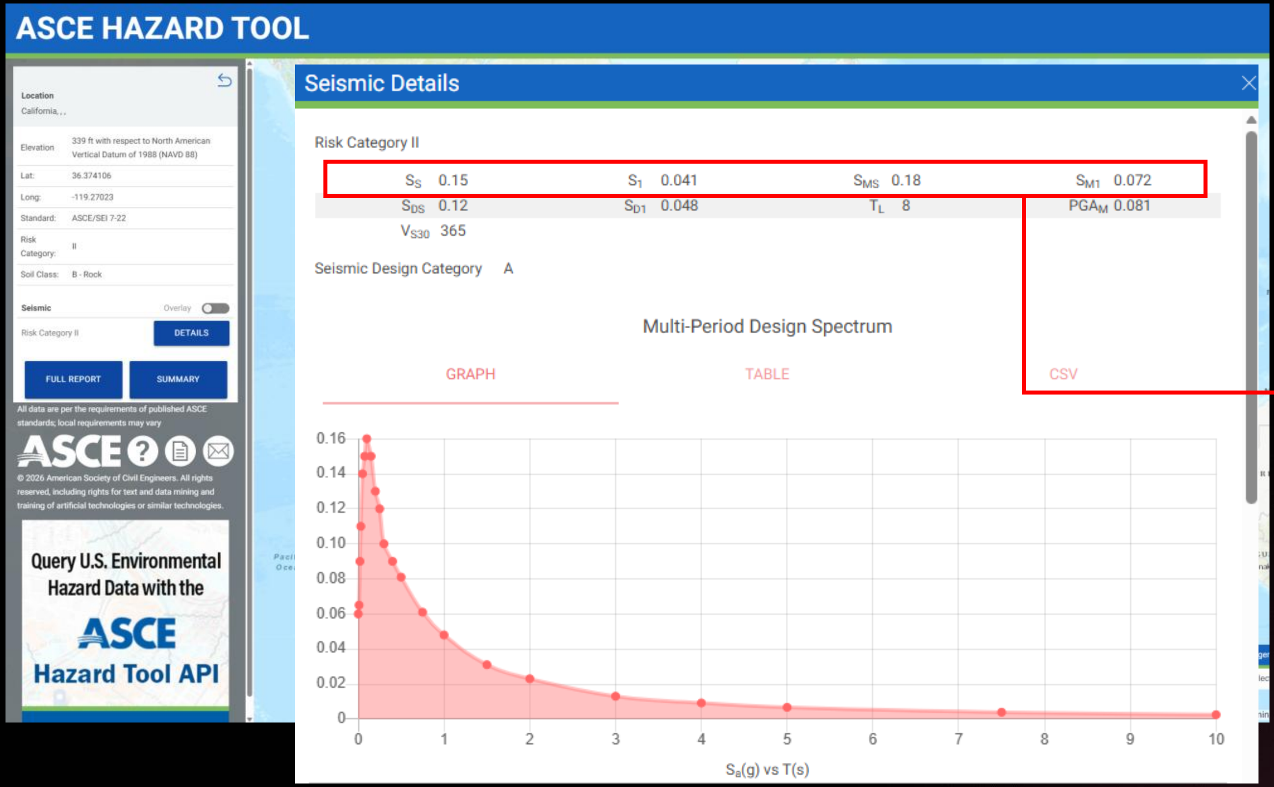
Automatically generated load combinations

08 Update Seismic Load Standard : ASCE 7-22

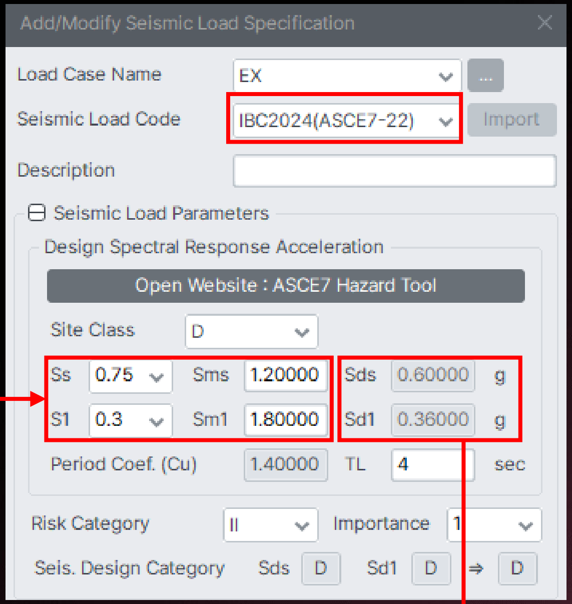
- Static Load
- Response Spectrum Functions

Seismic load definition using ASCE Hazard Tool data

Generate seismic loads using ASCE 7-22, supporting both Equivalent Lateral Force (ELF) and Response Spectrum methods based on Hazard Tool data.



Seismic Load Specification



11.4.4 Design Spectral Acceleration Parameters Design earthquake spectral response acceleration parameters at short periods, S_{DS}, and at 1-s periods, S_{D1}, shall be determined from Equations (11.4-1) and (11.4-2), respectively. Where the simplified alternative design procedure of Section 12.14 is used, the value of S_{DS} shall be determined in accordance with Section 12.14.8.1, and the value for S_{D1} need not be determined.

$$S_{DS} = \frac{2}{3} S_{MS} \qquad (11.4\text{-}1)$$

$$S_{D1} = \frac{2}{3} S_{M1} \qquad (11.4\text{-}2)$$

ASCE 7-22 11.4.4

- Retrieve seismic parameters directly from the ASCE Hazard Tool.

SDS and SD1 are automatically calculated.

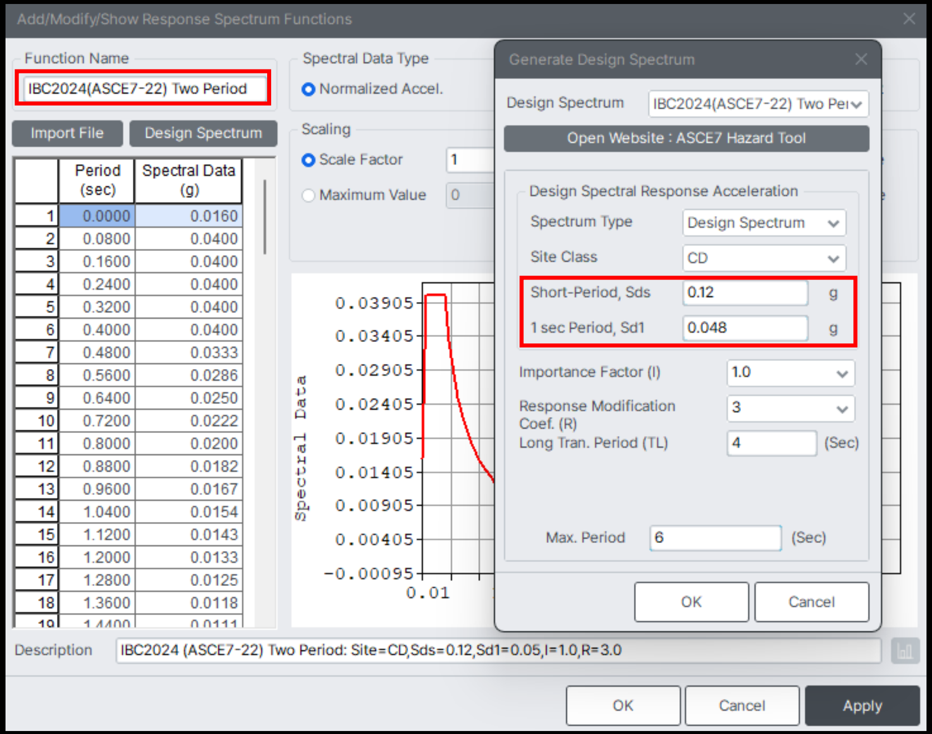
08 Update Seismic Load Standard : ASCE 7-22

Flexible response spectrum definition based on ASCE 7-22

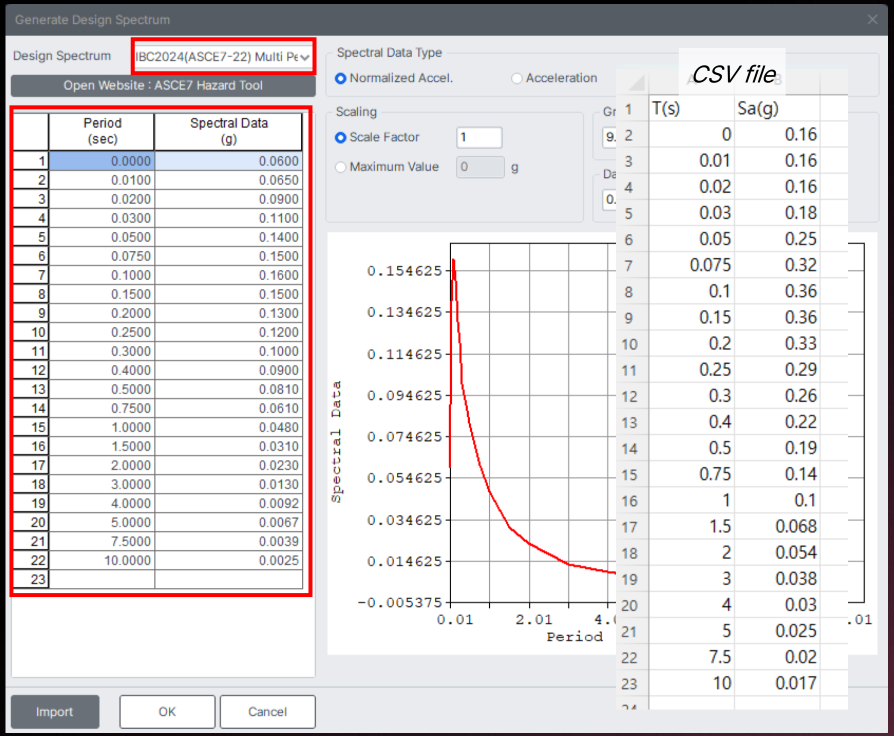
Define response spectra using both two-period and multi-period methods, including the newly introduced multi-period spectrum in ASCE 7-22.

- Static Load
- Response Spectrum Functions

Two-period



Multi-period



- Input SDS and SD1 to define the design spectrum.

- Copy spectrum data (CSV) from the Hazard Tool and paste it into the grid.

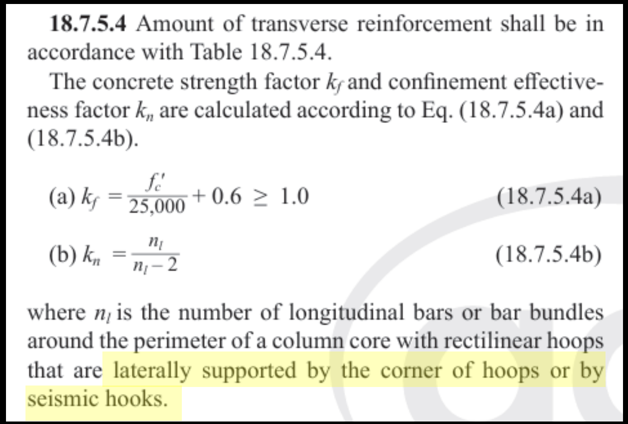
09 Improvement of Seismic design : ACI318 & Local Codes

Configure seismic hook types directly within rebar design workflows

Seismic hook types can now be defined consistently across multiple rebar design interfaces. While previous versions adopted a conservative approach by applying 'Both (135° or 180°)' as a default, the updated version introduces flexible options to prevent over-design and reflect the user's specific design intent. Users can now choose between '90°+135° (or 180°)' and 'Both' options to ensure optimized and precise column reinforcement design.

Available for

- ACI 318 (2014 / 2019 / 2025)
- TWN-USD112
- NTC-DCEC (2023)
- NSCP 2015



18.7.5.4 Amount of transverse reinforcement shall be in accordance with Table 18.7.5.4.

The concrete strength factor k_f and confinement effectiveness factor k_n are calculated according to Eq. (18.7.5.4a) and (18.7.5.4b).

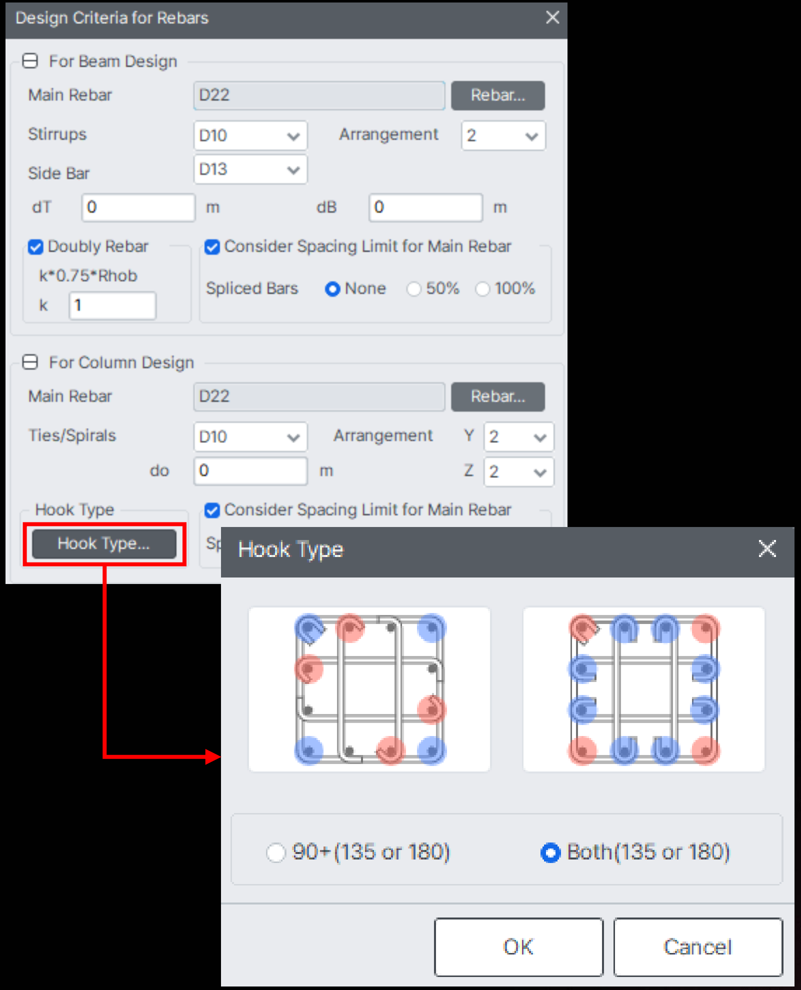
(a) $k_f = \frac{f'_c}{25,000} + 0.6 \geq 1.0$ (18.7.5.4a)

(b) $k_n = \frac{n_l}{n_l - 2}$ (18.7.5.4b)

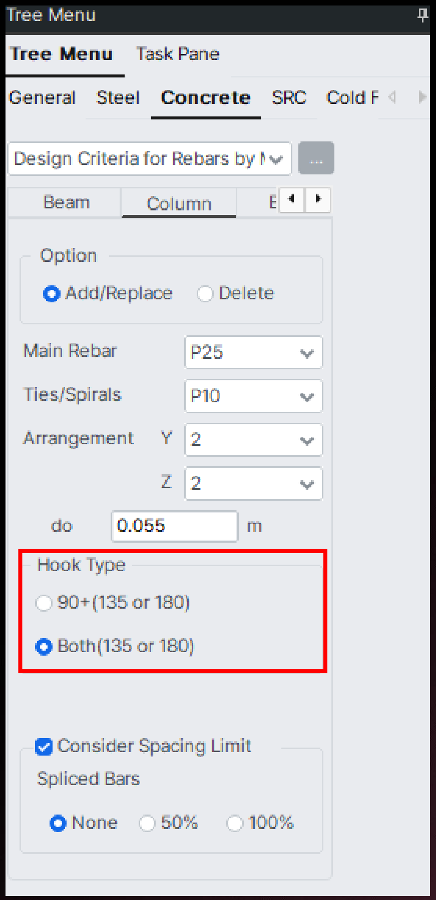
where n_l is the number of longitudinal bars or bar bundles around the perimeter of a column core with rectilinear hoops that are laterally supported by the corner of hoops or by seismic hooks.

ACI318-25 18.7.5.4

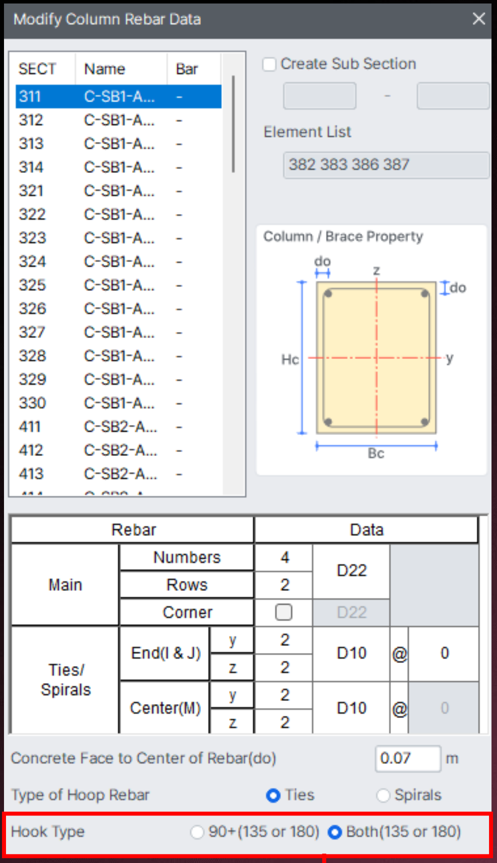
- Hook detailing affects the number of laterally supported bars (n_l) defined in ACI 318, directly impacting confinement effectiveness (k_n).



Design Criteria for Rebars (Code)



Design Criteria by Member



Modify Column Rebar data

10 Improvement of RC Beam design : TWN-USD112

Optimization of Vc Logic for Maximum Design Economy

To enhance design economy, the calculation logic has been updated to automatically select the optimal max value. This ensures maximum structural efficiency by utilizing the full potential of RC beam capacity.

Condition : Av ≥ Av,min

Previous v.2025

$$Vc = \min(\min(Vc.a, Vc.b), Vc.max)$$

Design Capacity ↑

Rebar Quantity ↓

Update v.2026

$$Vc = \min(\max(Vc.a, Vc.b), Vc.max)$$

Table 22.5.5.1—V_c for nonprestressed members

Criteria		V_c		
$A_v \geq A_{v,min}$	Either of:	$\left[2\lambda\sqrt{f_c'} + \frac{N_u}{6A_g}\right]b_w d$	Vc.a	
		$\left[8\lambda(\rho_w)^{1/3}\sqrt{f_c'} + \frac{N_u}{6A_g}\right]b_w d$	Vc.b	
$A_v < A_{v,min}$		$\left[8\lambda_s\lambda(\rho_w)^{1/3}\sqrt{f_c'} + \frac{N_u}{6A_g}\right]b_w d$		(c)

Notes:
1. Axial load N_u is positive for compression and negative for tension.
2. V_c shall not be taken less than zero.

22.5.5.1(非預力構材之Vc)

Detail Report

2) Calculate shear strength by concrete

$\lambda = 1.0$

$\rho_w = 0.00316$

$A_v \geq A_{v.min}$

$V_{c.a} = \max[\,[\,0.53\ \lambda\ \sqrt{f'_c} + \frac{N_u}{6A_g}\,]b_w\ d,\ 0.0\,] = 339.007\text{kN}$ (Vc.a)

$V_{c.b} = \max[\,[\,2.12\ \lambda\ \rho_w^{\ 1/3}\ \sqrt{f'_c} + \frac{N_u}{6A_g}\,]b_w\ d,\ 0.0\,] = 198.990\text{kN}$ (Vc.b)

$V_{c.max} = 1.33\ \lambda\ \sqrt{f'_c}\ b_w\ d = 850.717\text{kN}$

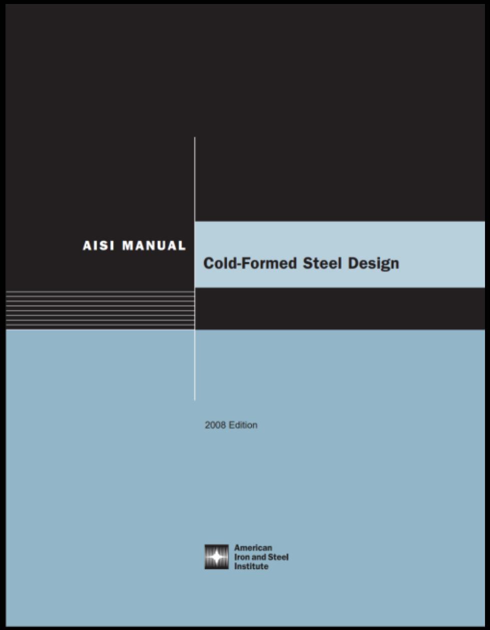
$V_c = \min(\max(V_{c.a}, V_{c.b}), V_{c.max}) = 339.007\text{kN}$

User Benefit → You can maximize structural capacity and enhance design efficiency by leveraging automated Vc optimization, eliminating unnecessary reinforcement for superior material economy.

11 Cold formed Section DB per AISI Manual (08)

Expanded Database : Standardized Cold-formed Steel Library.

Designing with light-gauge steel is now easier with our expanded database based on the AISI Manual. Access a wide range of standardized shapes of C-channels with precise sectional properties for accurate analysis.

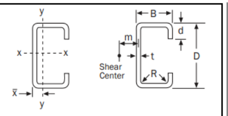


AISI MANUAL Cold-formed Steel Design

Table I - 1

Gross Section Properties

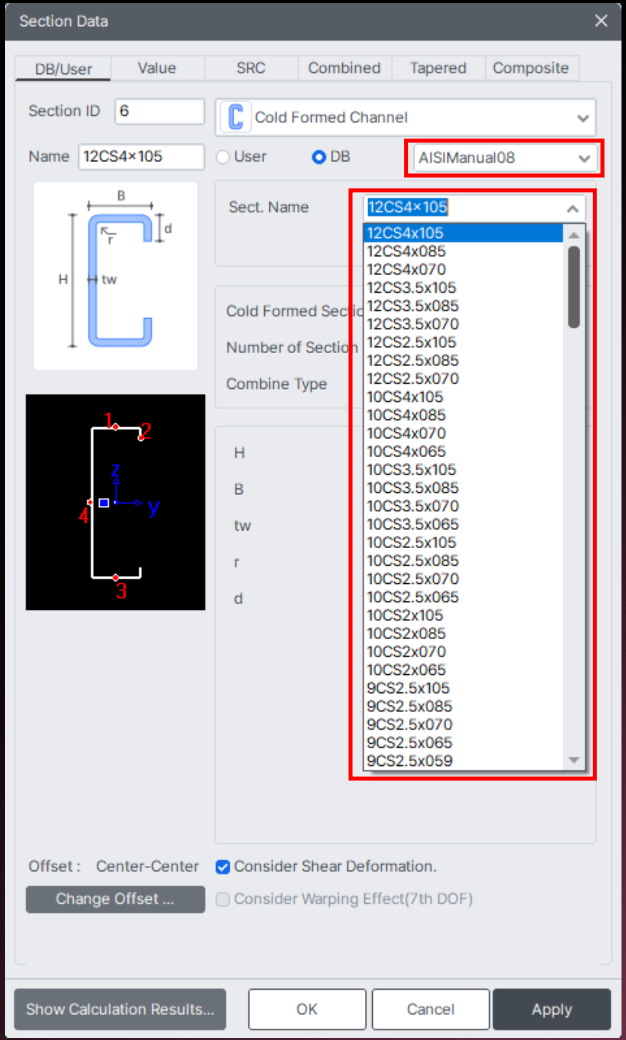
C-Sections With Lips



ID	D	B	t	d	R	Area	wt/ft	I_x	S_x	r_x	I_y	S_y	r_y	$\bar{x}$	m	J	C_w	j	r_o	x_o
	Dimensions							Properties of Full Section (Axis x-x)			(Axis y-y)									
	in.	in.	in.	in.	in.	in.^{2}	lb	in.^{4}	in.^{3}	in.	in.^{4}	in.^{3}	in.	in.	in.	in.^{4}	in.^{6}	in.	in.	in.
12CS4x105	12.000	4.000	0.105	0.885	0.1875	2.20	7.48	47.5	7.91	4.65	4.27	1.45	1.39	1.05	1.64	0.00808	122	6.74	5.52	-2.63
12CS4x085	12.000	4.000	0.085	0.836	0.1875	1.78	6.05	38.6	6.43	4.66	3.45	1.17	1.39	1.03	1.63	0.00429	98.5	6.76	5.52	-2.62
12CS4x070	12.000	4.000	0.070	0.800	0.1875	1.47	4.98	31.9	5.31	4.66	2.84	0.955	1.39	1.02	1.63	0.00239	80.8	6.77	5.52	-2.62
12CS3.5x105	12.000	3.500	0.105	0.885	0.1875	2.09	7.12	43.8	7.29	4.57	3.07	1.17	1.21	0.879	1.41	0.00769	89.1	6.81	5.23	-2.23
12CS3.5x085	12.000	3.500	0.085	0.836	0.1875	1.69	5.76	35.6	5.93	4.58	2.48	0.942	1.21	0.865	1.40	0.00408	71.7	6.83	5.23	-2.22
12CS3.5x070	12.000	3.500	0.070	0.800	0.1875	1.40	4.75	29.4	4.90	4.59	2.04	0.773	1.21	0.855	1.40	0.00228	58.8	6.85	5.24	-2.22
12CS2.5x105	12.000	2.500	0.105	0.885	0.1875	1.88	6.40	36.3	6.05	4.39	1.34	0.692	0.843	0.567	0.951	0.00692	40.4	7.56	4.71	-1.47
12CS2.5x085	12.000	2.500	0.085	0.836	0.1875	1.52	5.18	29.5	4.92	4.40	1.08	0.557	0.843	0.555	0.947	0.00367	32.6	7.59	4.71	-1.46
12CS2.5x070	12.000	2.500	0.070	0.800	0.1875	1.26	4.27	24.4	4.06	4.41	0.893	0.457	0.844	0.546	0.943	0.00205	26.8	7.61	4.72	-1.45
10CS4x105	10.000	4.000	0.105	0.885	0.1875	1.99	6.76	31.0	6.20	3.95	4.04	1.42	1.43	1.15	1.73	0.00731	81.7	5.70	5.06	-2.83
10CS4x085	10.000	4.000	0.085	0.836	0.1875	1.61	5.47	25.2	5.05	3.96	3.27	1.14	1.43	1.14	1.72	0.00388	65.7	5.72	5.07	-2.82
10CS4x070	10.000	4.000	0.070	0.800	0.1875	1.33	4.51	20.9	4.17	3.97	2.69	0.937	1.43	1.13	1.72	0.00217	53.8	5.73	5.07	-2.81
10CS4x065	10.000	4.000	0.065	0.788	0.1875	1.23	4.19	19.4	3.88	3.97	2.50	0.869	1.43	1.13	1.71	0.00173	49.9	5.73	5.07	-2.81
10CS3.5x105	10.000	3.500	0.105	0.885	0.1875	1.88	6.40	28.5	5.69	3.89	2.91	1.15	1.24	0.971	1.49	0.00692	59.5	5.59	4.74	-2.41
10CS3.5x085	10.000	3.500	0.085	0.836	0.1875	1.52	5.18	23.1	4.63	3.90	2.35	0.926	1.24	0.957	1.48	0.00367	47.8	5.61	4.74	-2.40
10CS3.5x070	10.000	3.500	0.070	0.800	0.1875	1.26	4.27	19.1	3.83	3.90	1.94	0.759	1.24	0.947	1.48	0.00205	39.2	5.63	4.74	-2.39
10CS3.5x065	10.000	3.500	0.065	0.788	0.1875	1.17	3.96	17.8	3.56	3.91	1.80	0.704	1.24	0.943	1.48	0.00164	36.3	5.63	4.74	-2.39
10CS2.5x105	10.000	2.500	0.105	0.885	0.1875	1.67	5.69	23.3	4.66	3.73	1.28	0.683	0.873	0.632	1.02	0.00615	27.0	5.78	4.15	-1.60
10CS2.5x085	10.000	2.500	0.085	0.836	0.1875	1.35	4.61	19.0	3.79	3.74	1.03	0.550	0.874	0.619	1.02	0.00326	21.8	5.81	4.16	-1.59
10CS2.5x070	10.000	2.500	0.070	0.800	0.1875	1.12	3.79	15.7	3.14	3.75	0.852	0.451	0.874	0.610	1.01	0.00182	17.9	5.83	4.16	-1.59
10CS2.5x065	10.000	2.500	0.065	0.788	0.1875	1.04	3.52	14.6	2.92	3.75	0.792	0.418	0.874	0.607	1.01	0.00146	16.6	5.84	4.17	-1.59
10CS2x105	10.000	2.000	0.105	0.885	0.1875	1.57	5.33	20.7	4.15	3.64	0.739	0.486	0.687	0.478	0.791	0.00576	16.1	6.28	3.90	-1.22
10CS2x085	10.000	2.000	0.085	0.836	0.1875	1.27	4.32	16.9	3.38	3.65	0.601	0.392	0.688	0.466	0.788	0.00306	13.0	6.32	3.90	-1.21
10CS2x070	10.000	2.000	0.070	0.800	0.1875	1.05	3.56	14.0	2.79	3.65	0.496	0.322	0.689	0.457	0.785	0.00171	10.7	6.34	3.91	-1.21
10CS2x065	10.000	2.000	0.065	0.788	0.1875	0.971	3.30	13.0	2.60	3.66	0.461	0.298	0.689	0.454	0.784	0.00137	9.91	6.35	3.91	-1.21

Dimensions and Properties for Use with the 2007 North American Cold-Formed Steel Specification

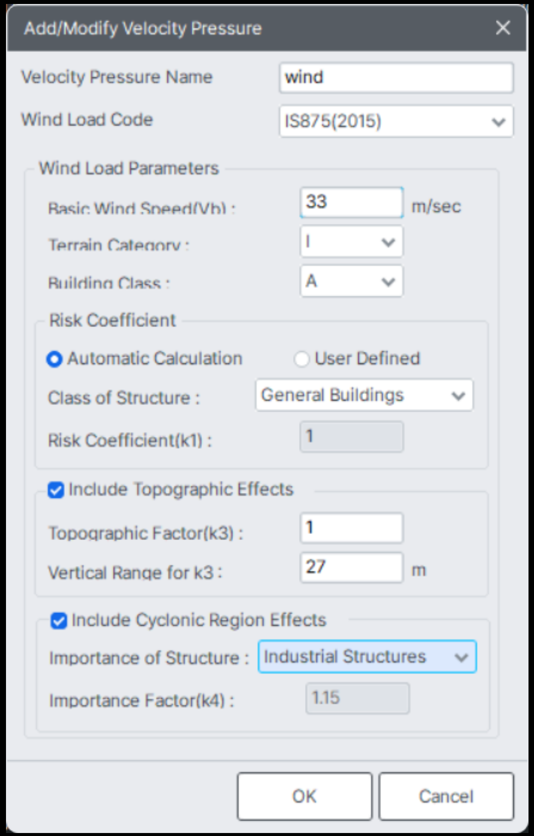
I-15



12 Wind Pressure: IS 875:2015

Added Area/Beam/Nodal Wind Pressure in the Wind Pressure feature

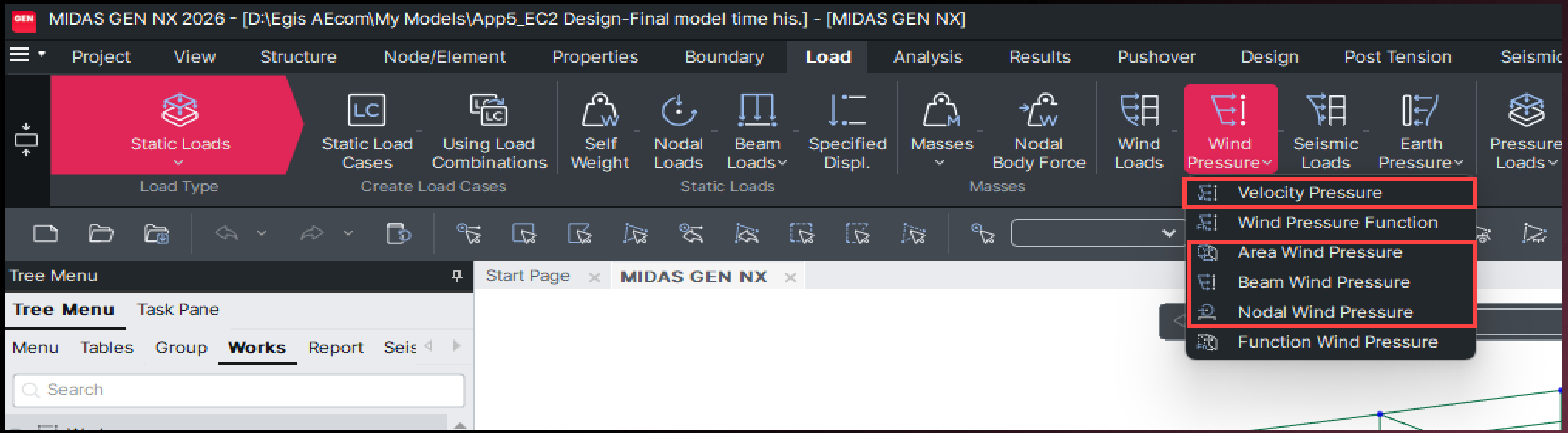
Wind pressure functions and beam, area, and nodal wind loads can be generated in accordance with IS875:2015.
Wind loads are automatically calculated and applied based on structural geometry and loading direction.



Velocity Pressure Function: Create velocity pressure functions in accordance with IS875:2015 for wind load generation.

Beam, Area & Nodal Wind Loads: Generate and apply wind loads to beams, enclosed areas, and nodes based on structural geometry, projected area, and loading direction.

IS875:2015 Compliance: Support wind pressure calculation and wind load generation in accordance with IS875:2015 provisions.



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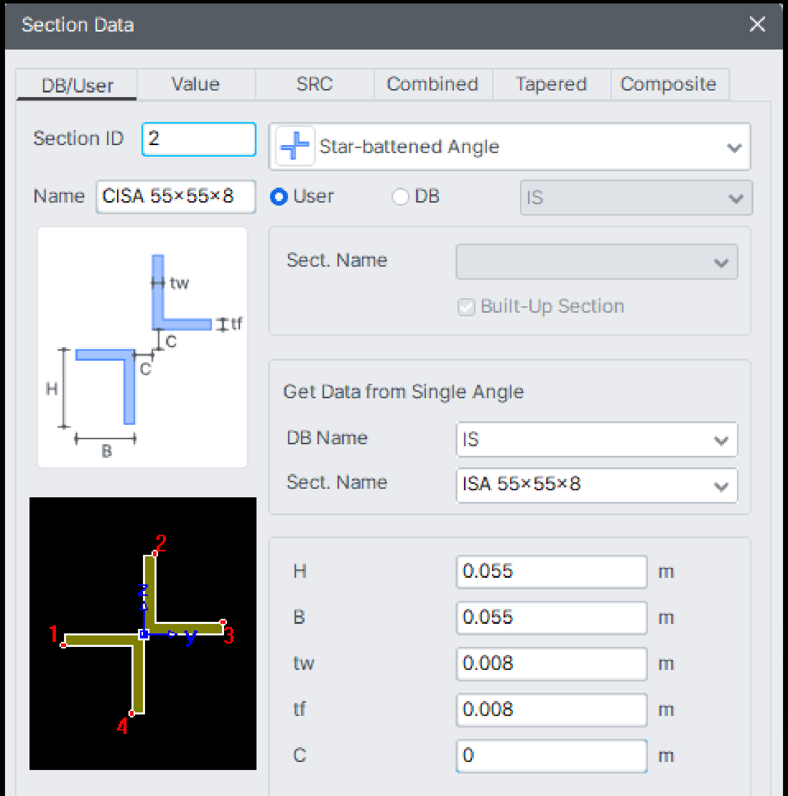
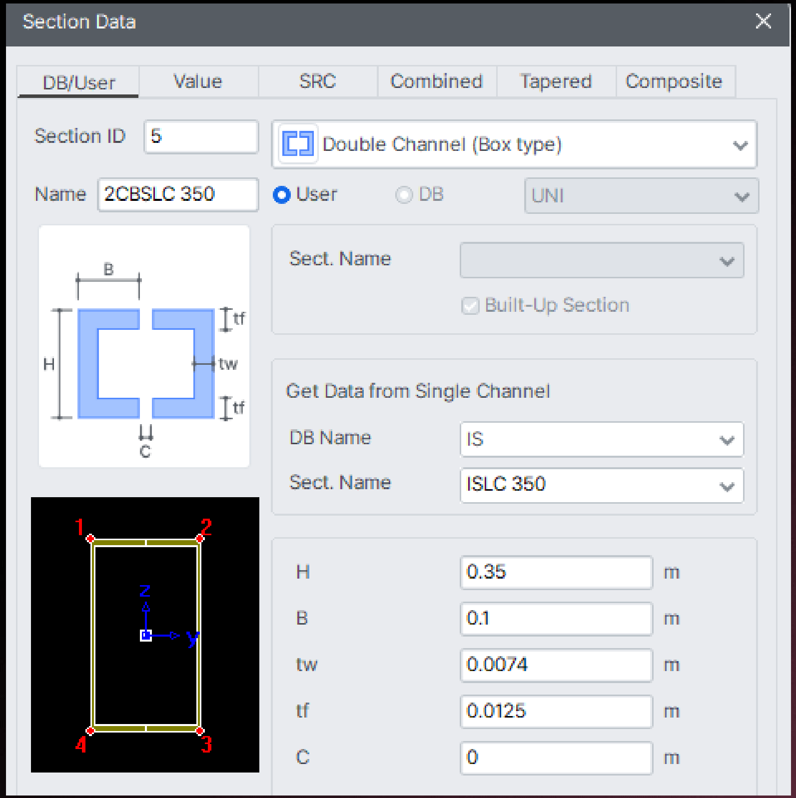
13 Star battened and Box type Section: IS 800:2007

Star Battened and Double Channel Section Design

Support for Star Battened angle and Double Channel (Box type) built-up sections has been added in accordance with IS800:2007. Engineers can define and design these built-up steel sections directly within GEN NX.

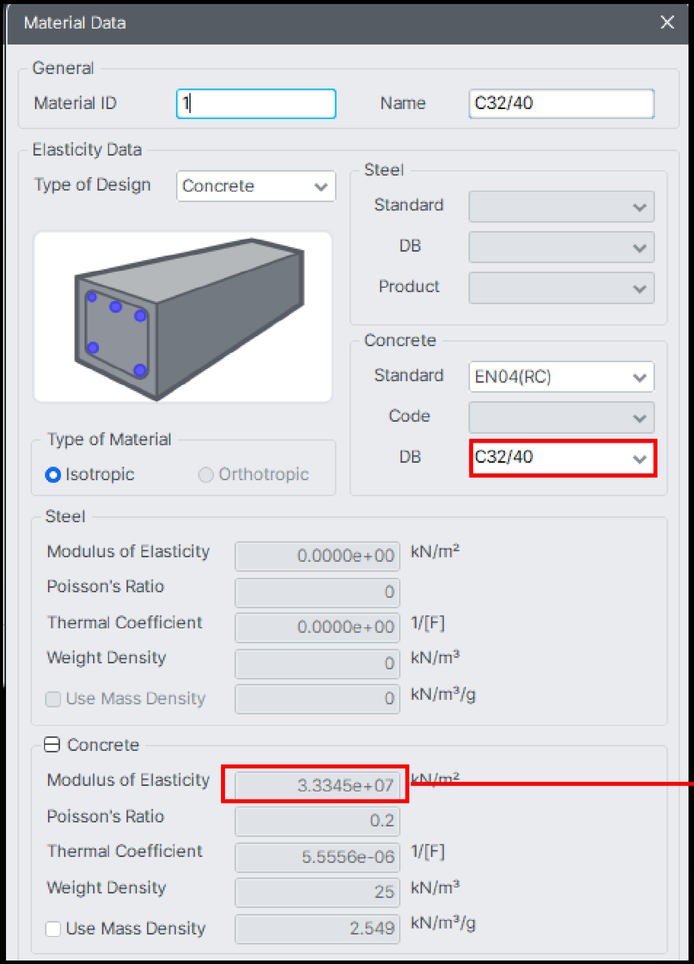




14 Material Properties for Singapore & Eurocode

Add a concrete material property

For Singapore and Eurocode-based countries, the concrete strength was generated as C32/40.



$$E_{cm} = 22[(f_{cm})/10]^{0,3}$$
$(f_{cm}$ in MPa$)$

$$f_{cm} = f_{ck}+8(\text{MPa})$$

= fcm = 32+8 = 40MPa

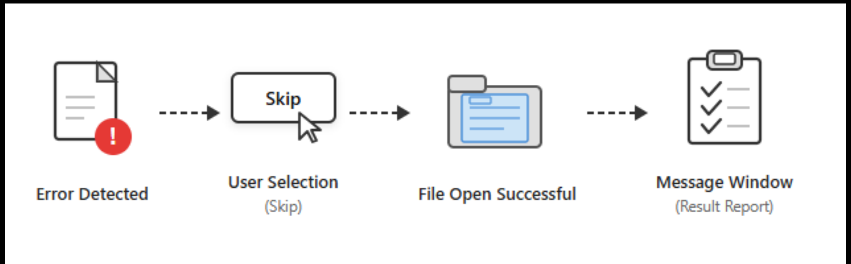
$= 22[(40)/10]^{0.3}$

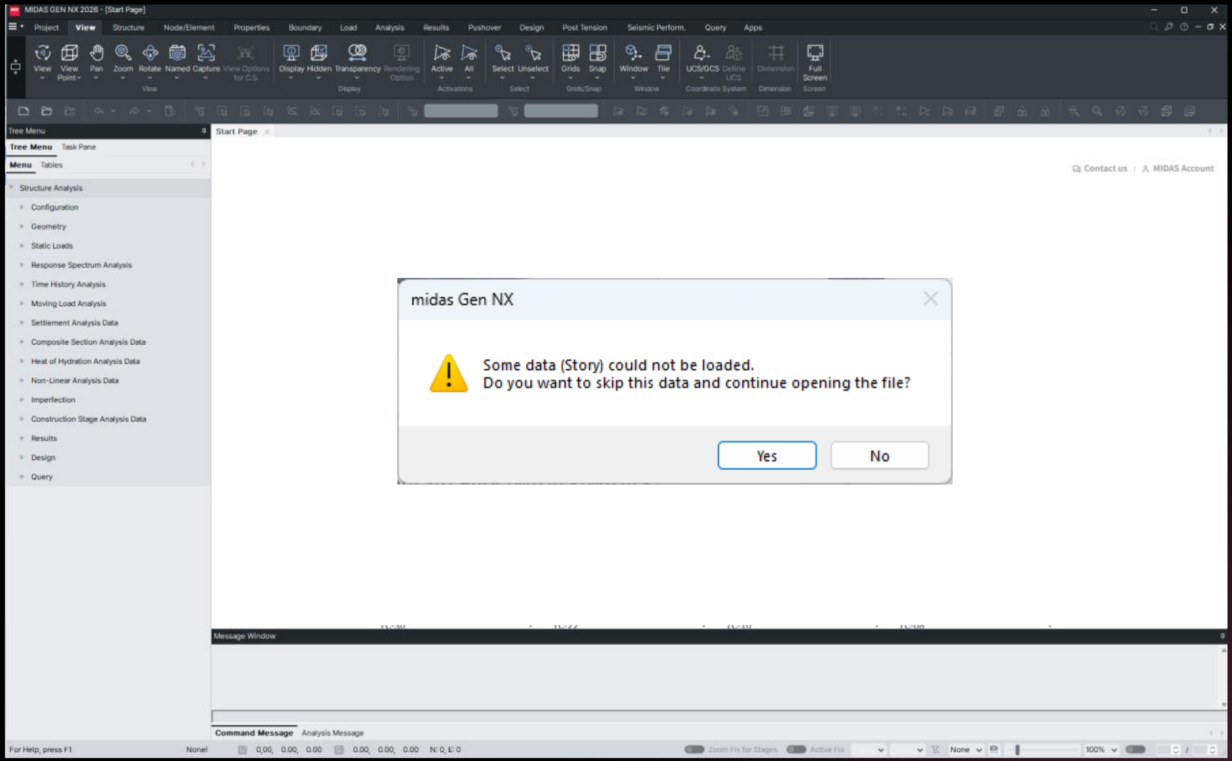
= 3.3346 e+07 kN/㎡

15 File Open Error Skip System

Improved File Recovery and Accessibility

The file-loading structure has been improved to prevent entire project failures caused by specific corrupted data segments. Accessibility is improved by skipping detected error points and loading all other normal data to minimize downtime.





16 Faster View Operations for Large Models

Faster View Operations for Large-Scale Models

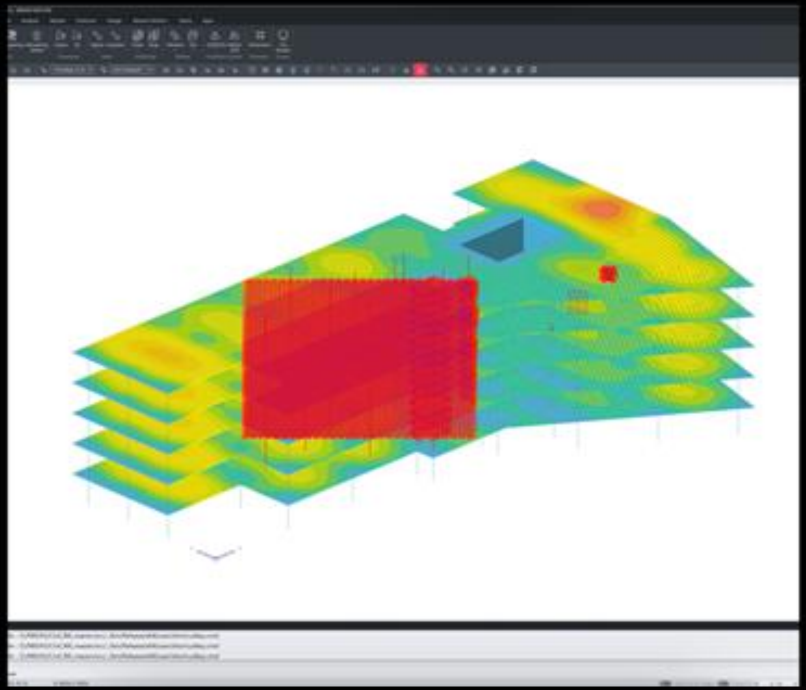
Implemented view selection caching to reduce redundant calculations and improve screen responsiveness when working with large-scale models. Performance improvements of up to 10× were achieved in filtering, group selection, and view refresh operations.

Key points

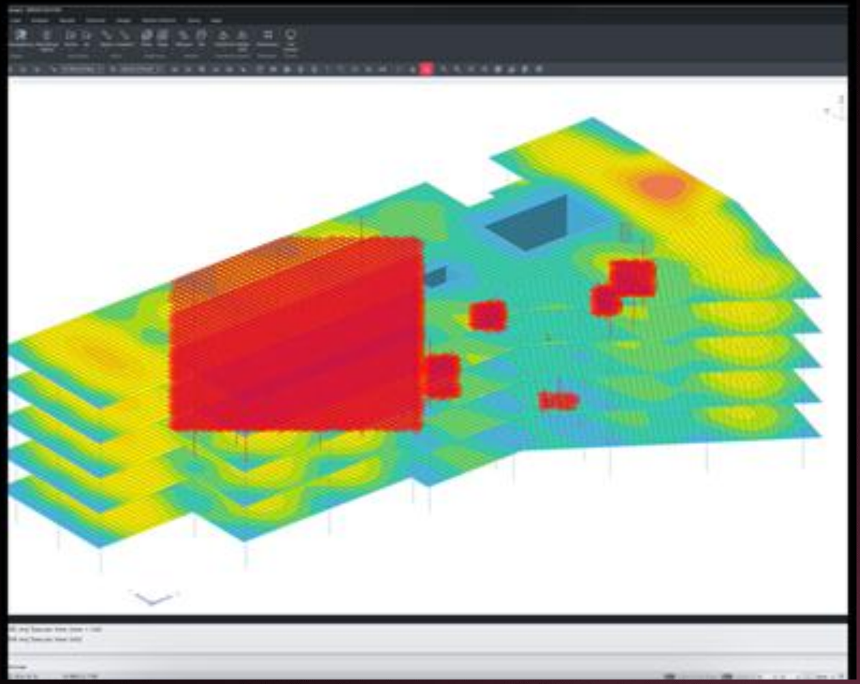
- View Selection Caching
- Optimized Filtering Operations
- Enhanced Group Selection Performance
- Faster View Refresh Processing

User Benefit

- *Improved Screen Responsiveness*
- *Up to 10x Faster Response*
- *Stable Performance for Large Models*



MIDAS GEN NX 2026 (v1.1)



MIDAS GEN NX 2026 (v2.1)

17 Persistent Settings & High-Resolution Display Support

Smarter Result Review with Persistent Settings and Enhanced Visualization

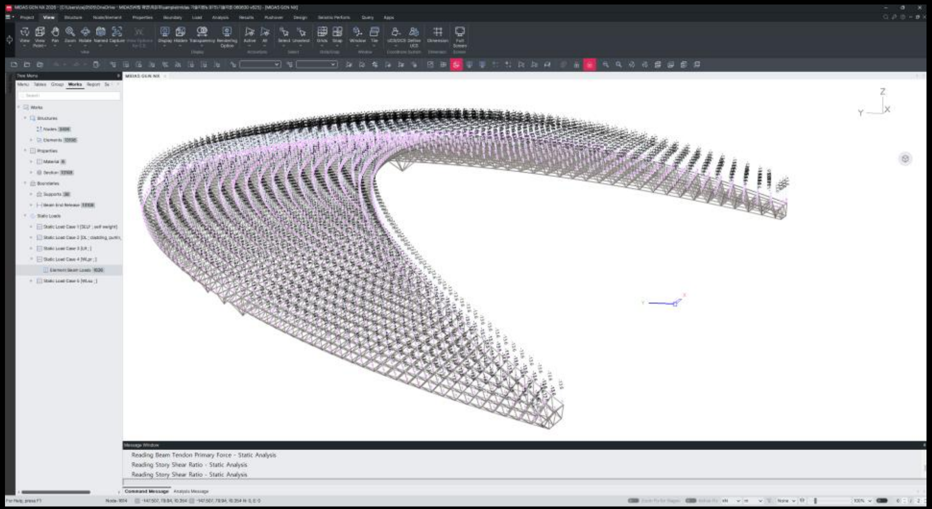
Improved workflow continuity and display usability through automatic table configuration restoration, adaptive UI scaling, and enhanced visualization for high-resolution environments.

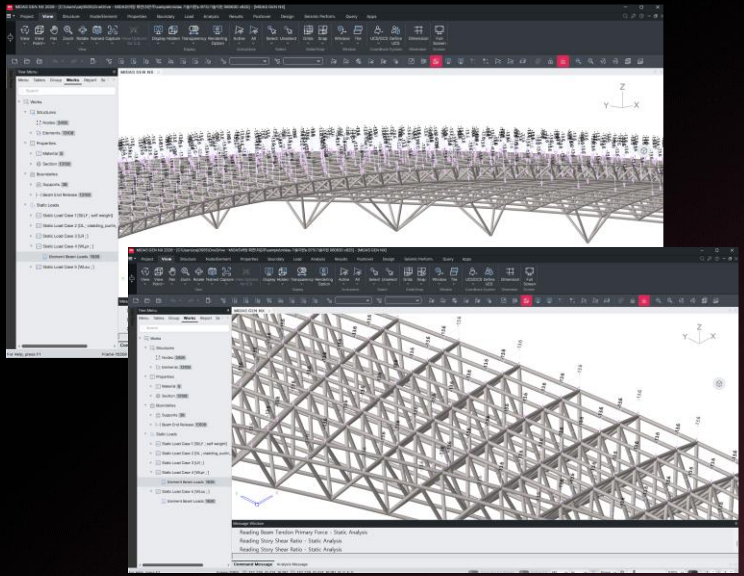
Key points

- Automatic Save of Table Selections
- Restoration of Load Set, Element, and part Selections
- Adaptive UI Scaling for Display Resolution
- Enhanced Pressure Load Visualization
- Improved 4K/UHD Display Readability

User Benefit

- *Elimination of Repetitive Table Configuration*
- *Immediate Continuation of Work*
- *Consistent User Experience Across Resolutions*
- *Clearer Result Review on High-Resolution Display*





Current User Pain Points

Close Table

↓

Reopen Table

↓

① Reselect Load Sets

② Reselect Elements

③ Reselect Parts

⚠ Repeated dozens of times per day → time loss and reduced focus

Improved Workflow

Close Table

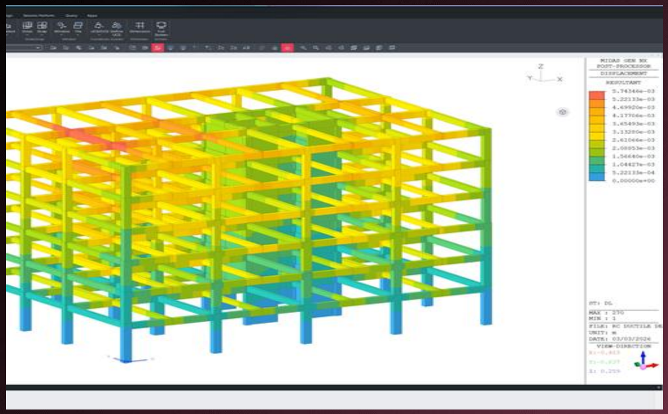
↓

Reopen Table

↓

✓ Previous settings automatically restored

✓ Work can continue immediately



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18 4× Faster Post-Processing Tables

Post-Processing Table Performance

70 post-processing tables performance was optimized with new table framework. As a result, large-scale result processing performance was significantly improved, achieving an average performance gain of 4.9×.

Key points

- Migrated Post-Processing Tables
- Unified Table Framework Architecture
- Optimized Large-Scale Result Processing
- Accelerated Table Generation Performance

User Benefit

- *Average 4.9x Faster Processing*
- *Reduced Waiting time for Large Result Sets*
- *Faster Result Review Workflows*

Model	New Table Time (s)	Legacy Table Time (s)	Performance Gain
Large Model A	1,321	8,277	6.26×
Large Model B	88	452	5.16×
Large Model C	143	708	4.96×
Large Model D	852	3,781	4.44×
Large Model E	256	956	3.73×
Average	532	2,835	4.91×

Enhanced Tables to the New Framework

Category	Representative Tables	Count
Common Results	Reaction, Displacement, Beam, Plate, Solid, Time History Analysis	33
Story Results	Story Drift, Story Displacement, Story Shear, Overturning Moment, Irregularity Checks	19

MIDAS Design+

Release Note

Release Date : June 2026

Product Ver. : MIDAS Design+ 2026 (v2.1)

MIDAS

01 Welded connection Design:

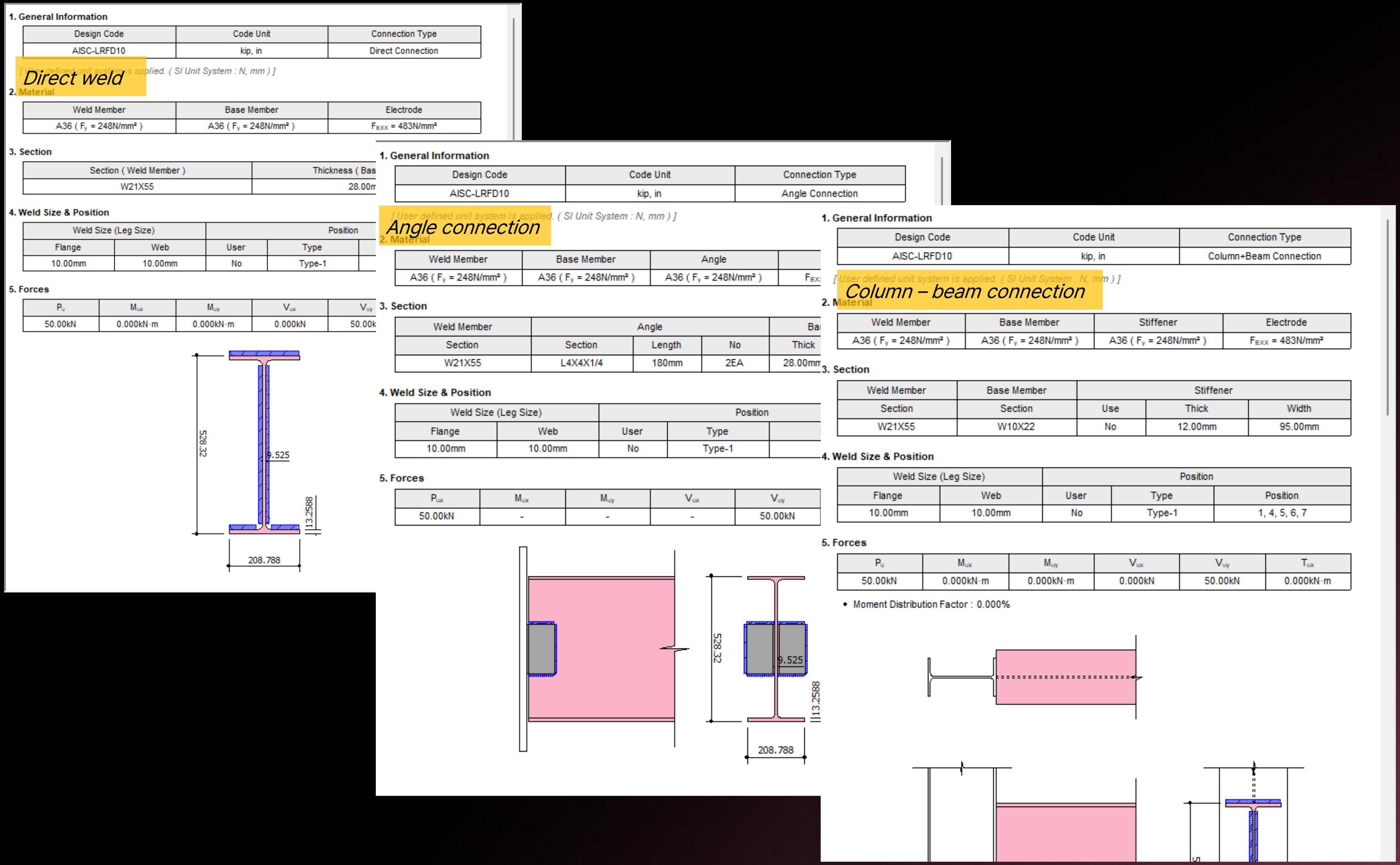
AISC LRFD 05
AISC LRFD 10
AISC LRFD 16
AISC LRFD 22, 22M
AISC ASD 05
AISC ASD 10
AISC ASD 16
AISC ASD 22, 22M

Key points

- Multiple Welded Connection Types
- AISC LRFD & ASD Support
- Efficient Connection Verification

Welded connection

Design welded steel connections for various connection types, including direct weld, angle connection, and column-beam connection. Multiple AISC design standards are supported for efficient connection verification and design.



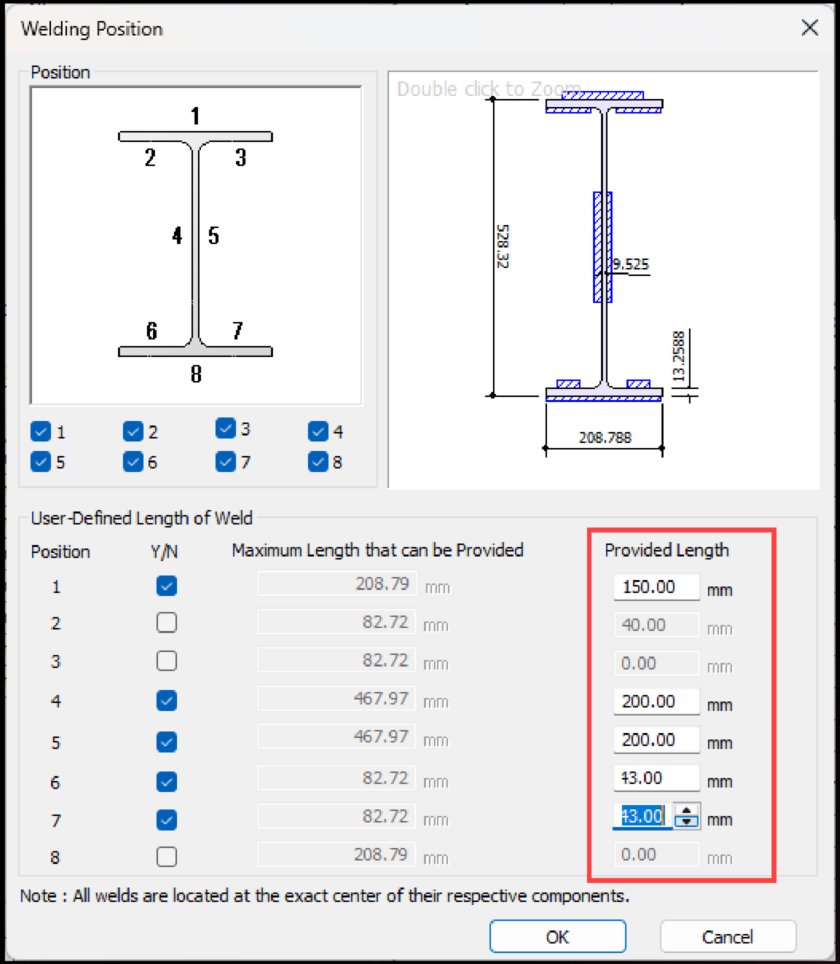
02 User-defined weld length

User-defined weld length for the design of welded connection

Users can directly define weld lengths for each weld position during welded connection design.
This provides greater flexibility and enables more practical connection design based on project-specific requirements.

Key points

- User-defined Weld Length
- Practical Connection Design
- Flexible Design Verification

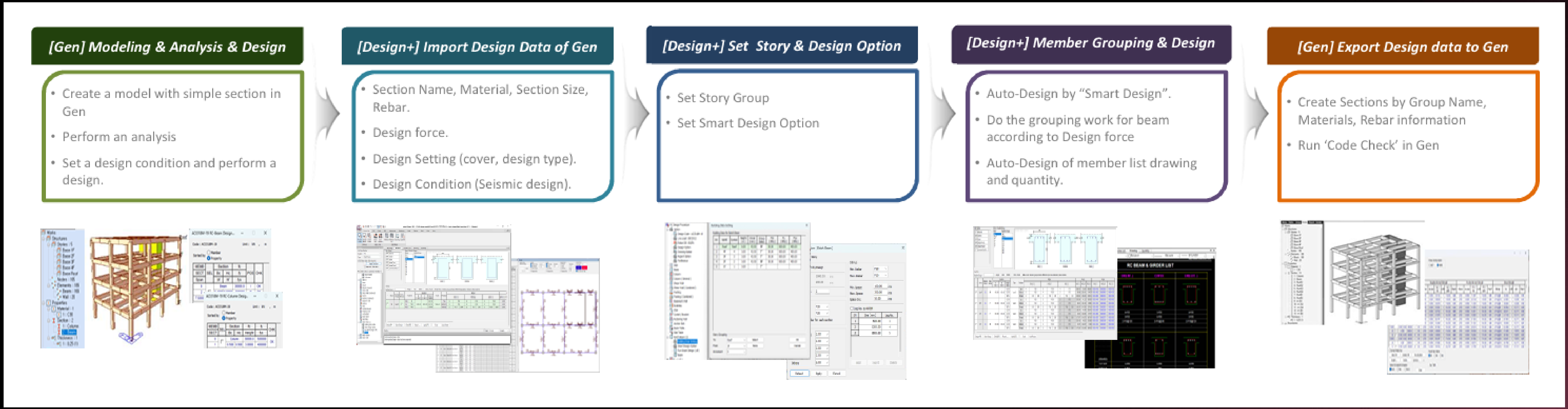


03 Batch Beam, column, wall design as per IS 456:2000

Batch Beam, column, wall design as per IS 456:2000 has been added

When performing design in GEN, repetitive tasks such as adding new sections, modifying member sizes, and re-running analysis and design can require significant time and effort, especially for large-scale projects.

Batch Design streamlines this process by quickly generating and linking material, section, and reinforcement information for beams, columns, and walls, helping users perform iterative design workflows more efficiently.



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