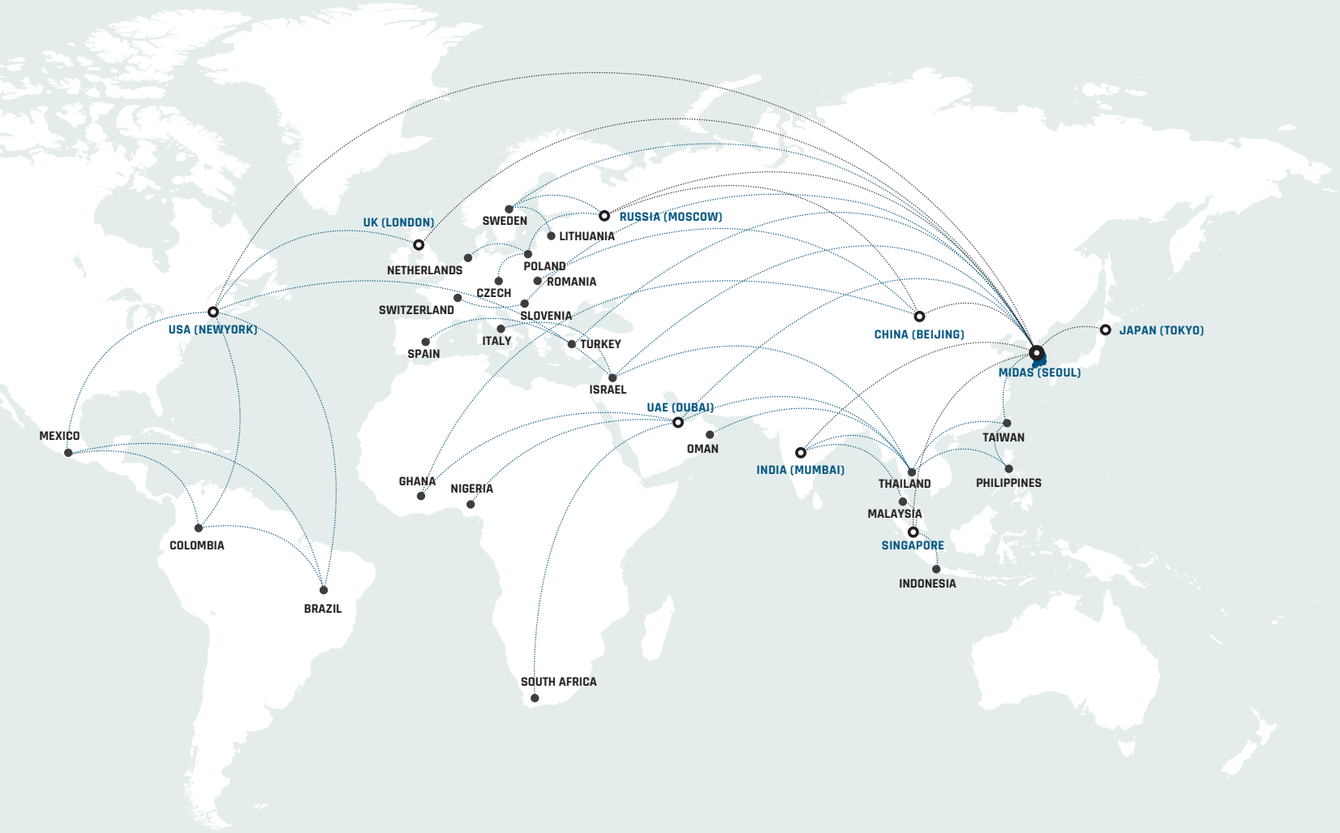
MIDAS

midas nGen

Next Generation Solution
for Building Analysis and Design



THE WORLD BEST

ENGINEERING SOLUTION

PROVIDER & SERVICE PARTNER

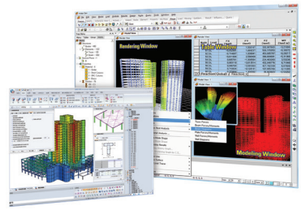
MIDAS FAMILY PROGRAMS

Building

midas Gen
Integrated System for
Building and General Structures

midas DShop
Auto-Drawing Module to generate
Structural drawings and Bill of
Materials

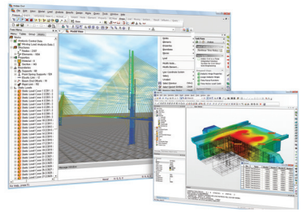
midas Design+
Structural engineer's tools



Bridge

midas Civil
Integrated Solution System
for Bridge and Civil Structures

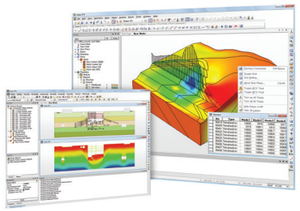
midas FEA
Advanced Nonlinear and
Detailed Analysis System



Geotechnical

GTS NX
GeoTechnical analysis System

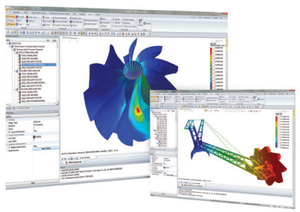
SoilWorks
GeoTechnical Solutions for
practical Design



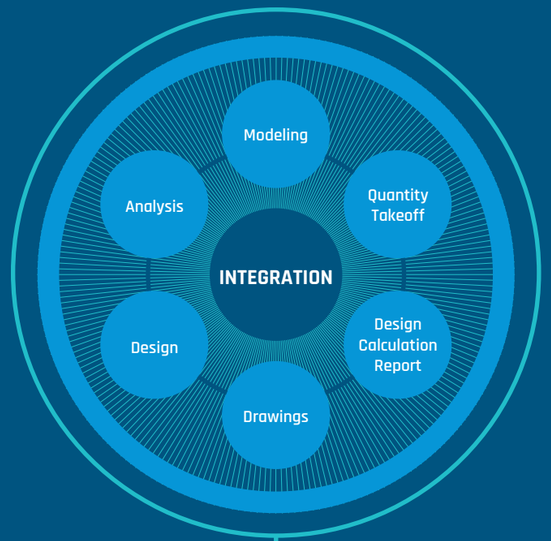
Mechanical

midas NFX
Total Solutions for Mechanical
Engineering in structural
mechanics and CFD

midas FEA
General Pre & Post Processor for
Finite Element Analysis



ALL IN ONE DESIGN SYSTEM



AUTOMATION

Reduce Production Time Significantly

- Auto-generation of members from 2D CAD Tracing
- Auto-generation of mesh
- Automatic design checks
- Auto-generation of drawing / design report / quantity takeoff

OPTIMIZATION

Enhance Optimized Quantity Takeoff

- Optimum section size by preliminary design
- Auto-calculation of steel sections & reinforcement reflecting minimum weights and constructability

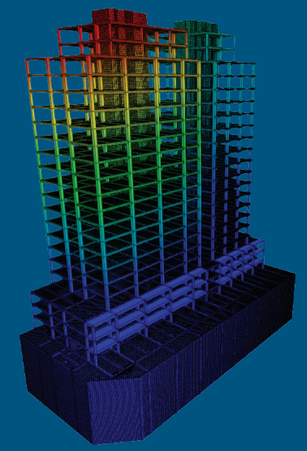
HIGH QUALITY

High Quality Standardization of Design Deliverables

- Auto-generation of structural calculation report
- High-quality structural drawings
- Auto-compilation of quantity takeoff reflecting constructability

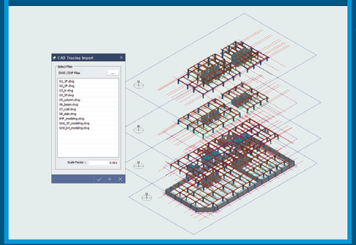
midas nGen

Next Generation Solution for Building Analysis and Design



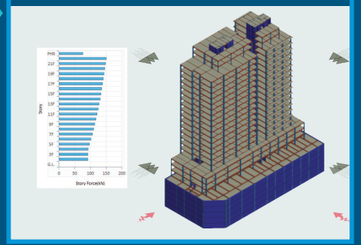
Easy & Fast CAD based Modeling

- Cad Tracing based modeling
- Auto-generation of members from 2D drawings



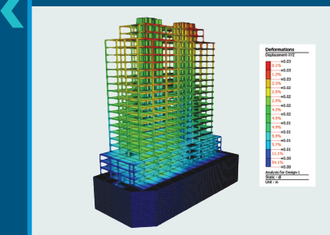
Building Specialized Loading

- Slab Load
- Auto-generation of wind and seismic loads



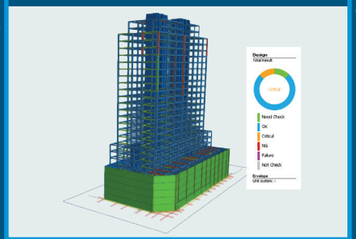
Accurate Analysis Results

- Auto-generation of mesh by members
- Various analysis cases which can be separately or jointly analyzed



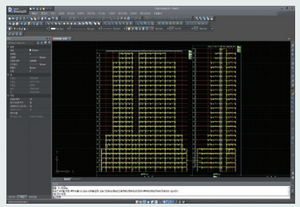
Optimum Design

- Optimum section size by preliminary design
- Status of design acceptance criteria displayed in colors



Auto-generation of Output

- Auto-generation of structural drawings and reports
- Quantity takeoffs by members, materials, etc.



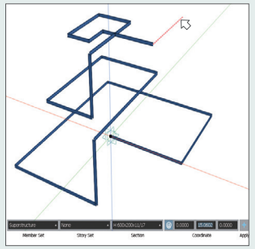
BENEFITS

midas nGen is the most advanced structural engineering system, which has integrated the total process of structural engineering practice – 3D modeling, analysis, design and 2D drawings. With the automation and optimization facility, it generates a comprehensive structural drawings, structural calculation reports and quantity takeoffs, which helps the engineers reduce time required to produce high quality design deliverables and gain productivity.

MODELING

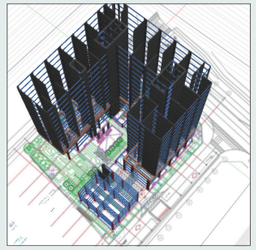
Easy & fast CAD based modeling

Through grid and tracing modeling



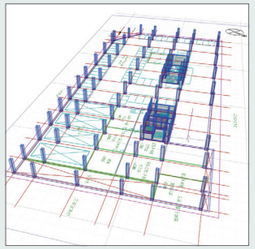
CAD based modeling

- Define members by a way of drawing lines in CAD
- Use snap points, or define a member by specifying the coordinates of the member end points
- Various editing functionality such as Extend / Trim / Offset



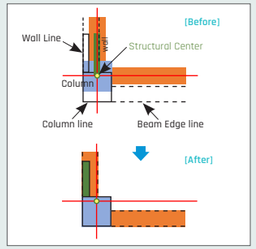
CAD Tracing

- Assign members on CAD tracing lines
- Snap points on intersect or end points of CAD tracing
- Auto-generation of members by recognizing CAD layer



Auto-generation of members

- Auto-generation of members using Cad Tracing (Walls, Columns and Beams)
- Auto-generation of slab by recognizing closed area

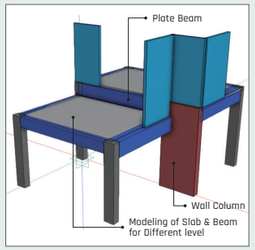


Member offset

- Set the reference of section to the top of beam or slab members
- Members auto-cut or merged reflecting the connectivity between member types

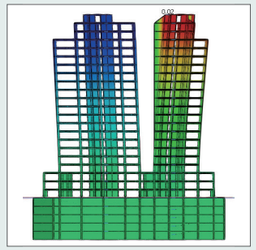
Accurate analytical model simulation

Various modeling features and boundary conditions



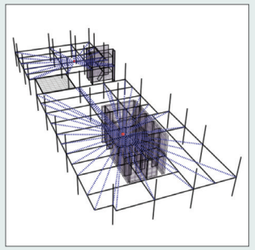
Accurate construction shape simulation

- Plate-Beam member
- Wall-Column member
- Arc Wall member



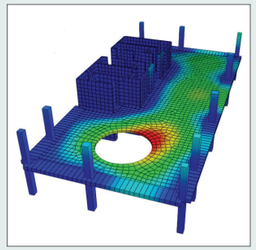
Multi-tower building

- Wind and seismic loads assigned by towers
- Auto-generation of floor diaphragm for each tower



Multiple diaphragms

- Define multiple diaphragms for diverse mass centers in the identical floor level
- Automatic generation of diaphragm by floors



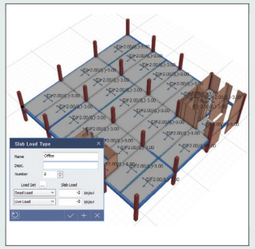
Opening

- Easy generation of opening
- Auto-generation of mesh reflecting various shape of opening

LOADING & ANALYSIS

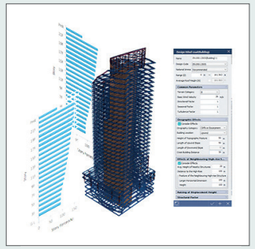
Practical loading definition for building design

Intuitive user interface for fast data input



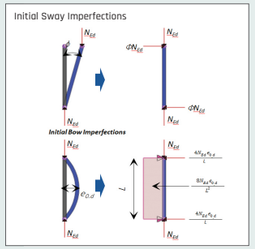
Define slab load

- Definition of slab loads to slab members
- Easy revision of applied loading value and area



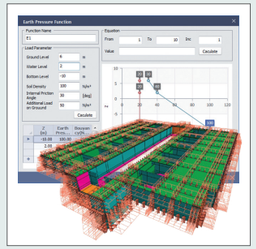
Define wind & seismic loads

- Auto-generation of wind and seismic loadings for a building
- Loading profile and report generation
- Seismic loading input due to Response Spectrum function



Define notional load

- Auto-generation of notional loads as per Eurocode and BS code
- Equivalent horizontal force based on the user-defined proportion ratio of the vertical load

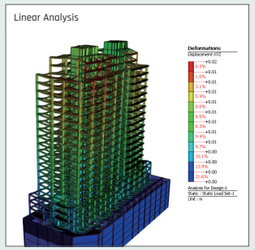


Define loading functions

- Loading definition in the form of a user-defined function
- Definition of soil pressure loading using geotechnical investigation results
- Change the loading positions by moving the member

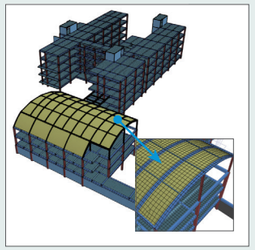
Advanced analysis features

Accurate results and auto-generation of mesh



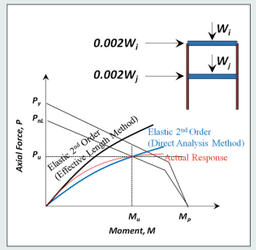
Parametric design using analysis cases

- Significantly fast analysis speed for linear static, modal, buckling, crane and construction stage analysis
- Create various analysis cases composed of combinations of Members + Loads + Boundary Conditions of the modeling data, which can be separately or jointly analyzed, or coupled analysis can be performed
- Combine member force results of various analysis cases as required at the design stage



Auto-generation of mesh reflecting connections between members

- Auto-create an analytical model from a geometric shape model for which midas nGen creates fictitious nodes at the connection positions where members meet.



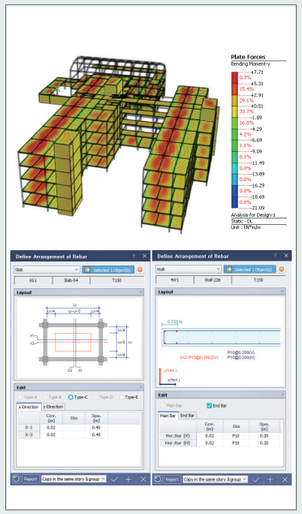
Direct Analysis Method

- As a new design method for stability, Direct Analysis Method (DAM) is available which includes nominal geometric imperfection and stiffness reduction effects directly within the structural analysis for more accurate structural behavior.

DESIGN

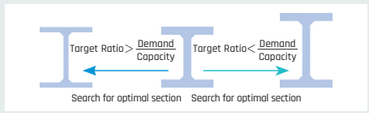
Optimal steel section and reinforcement calculations

Optimum design for minimum quantity



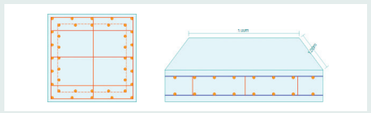
Steel Section Optimal Design

- Search for optimal sections satisfying the target stiffness specified for each design category
- Calculate the total member sections based on the continuity of members and their constructability
- Obtain design member forces after new analysis
- Perform design checks



Rebar Placement Optimal Design

- Calculate the member capacity satisfying the target design strength ratio for each design category
- Calculate the minimum reinforcement ratio of the most unfavorable member for each member group
- Calculate the reinforcement in reference to the bar placement range settings by section sizes
- Perform design checks



Calculation of optimal steel sections

- Perform steel section calculations through searching for optimal sections from the section database on the basis of the target strength ratios of all the design categories including relative displacements
- Control the range of section sizes by member groups while keeping the auto-control of limiting sections by member connection conditions

Calculation of optimal reinforcing steel

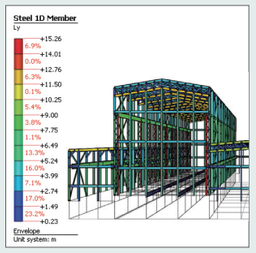
- Calculate the reinforcement of minimum quantity reflecting the positions and spacing of rebars with respect to the width and depth of the member based on the target strength ratio for each design category
- In case of plate members, auto-calculate the reinforcement corresponding to the x/y local directions

2D member design

- Optimal rebar placement for wall and slab members
- Summary and detail design report for 2D members

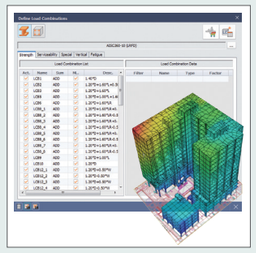
Automation of design

Intuitive setting for design parameters & checking design results



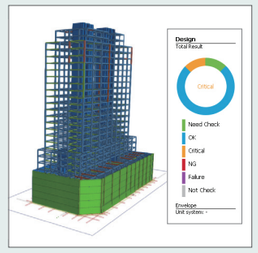
Auto-definition of design parameters by members

- Auto-define design parameters as per design codes by design positions
- Set design parameters all at once, and check / edit the data in a table form
- Check auto-calculated design parameters such as unbraced lengths in contour graphics



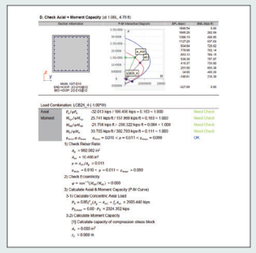
Auto-generation of load combinations

- Auto-generate load combinations using a template by load types based on a specified design code
- Mange the design code based load combination templates through implementing user defined database



Graphical design evaluation results

- Check the design results of the total model through strength ratios represented in colored graphics of design assessment categories
- Classify the design assessment categories considering the specified target ratio



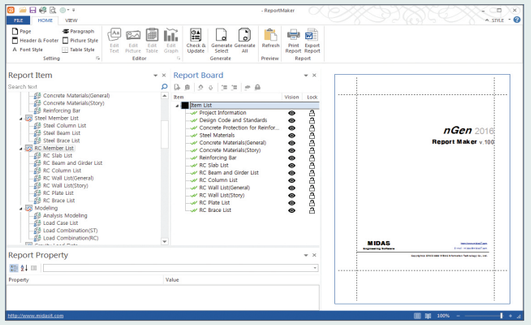
Detail design results check

- Select a member from the model view and generate a structural calculation report in the Word format
- Assess the detail design results of all the design check items by members in a table

OUTPUTS

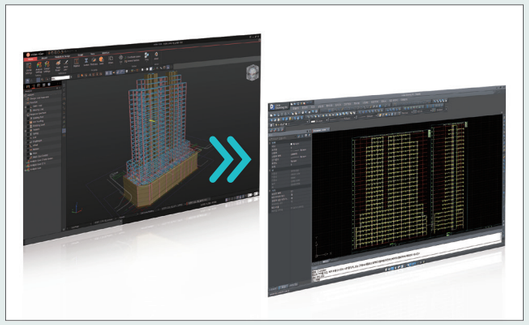
Auto-generation of high-quality outputs

Structural calculation report and structural drawings



Structural calculation report

- Auto-arrange modeling and analysis result graphics to be inserted in the report from Grid / Plan information
- User specified templates to use identical report format repetitively
- One click to generate a structural calculation report integrated with modeling, drawing and analysis result data

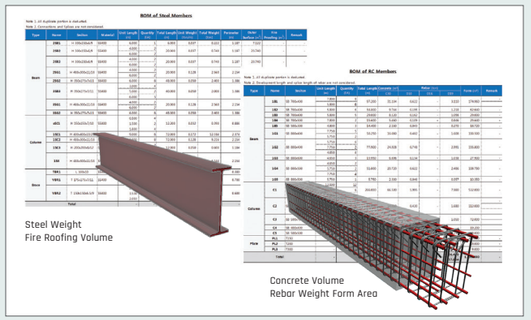


Structural drawings

- Generate and edit structural drawings from midas Drawing of a 2D CAD environment
- Auto-generate Column Layout Plan / Framing Plans / Elevations / Sections / Loading Plans / Equipment Pad Layout / Member List
- Create sections from framing plans at desired locations on plans in real time
- Use specified templates to define the CAD properties of all the auto-generated drawing composition entities. Freely change the templates as necessary

Member quantities and interface system

Auto-compilation of member quantities reflecting constructability and two way interface system



Structural calculation report

- Quantity calculations by lengths of a unit member and member groups
- Compilation of quantities based on center-to-center of members or lengths considering the member joints
- Quantities of steel members by steel grades / classification of concrete compressive strengths
- Quantities by rebar diameters
- Calculation of formwork areas / fireproofing / anticorrosive agent area

Interface

- 3D Tools Import / Export
  - Extract and import member information including geometric shape offsets
- Analysis Software Import / Export
  - Export analysis data (Special loadings are auto-converted to nodal loadings.) and import analysis results and data of an analysis software model, and generate design deliverables using midas nGen