

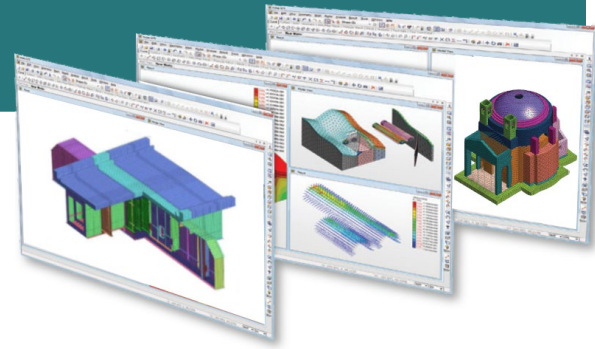


# midas FEA NX

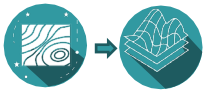
midas FEA NX is the single most advanced finite element analysis tool for all civil engineering applications. It can model and analyze localized zones using 2D and 3D elements and perform refined method analysis.

**For Who?** This hybrid software is suitable for structural and geotechnical engineers working on a variety of analysis problems and it is the single software to meet the requirements of both teams.

**Advantages** Midas FEA NX is essential for complex geometry and its advanced solver and analysis visualization is used by many in the industry to prove structural redundancy. Its ability to perform nonlinear analysis, dynamic time history analysis, geotechnical analysis, concrete cracking analysis and more, allows for in-depth and highly accurate structural analysis.



## Standard Version



Terrain Geometry Maker



Real 3D Geometry Modeling



Powerful mesh Generator

### Element Library

- Line Type: Truss / Embedded Truss / Beam / Embedded Beam / Tension Only / Compression Only / Pile / Geogrid / Tendon / Grid
- Plane Type: Flat Shells / Plane Stress / Plane Strain / Geogrid / Gauging Shell / Axisymmetry
- Solid Type: Tetrahedron / Pyramid / Wedge / Hexahedron
- Embedded Reinforcement Element
- Linear Interface Element (Elastic & Rigid links)

### Geometry Modeller

- DXF 2D & 3D (Wireframe), STEP & IGES, MXT(midas GEN/CIVIL) Import options
- Geometry Modeling including Curve, Surface, Solid and Advanced Modeling

### Mesh Generation (Auto/Map/Hybrid/Protrude Mesh Generation)



Outstanding Post-processing



Fast Analysis Solver



Tunneling and Mining

### Material Models

- Linear Elastic
- Orthotropic (Transversely Isotropic/Joined Rock Mass/2D&3D Orthotropic)

### Analysis Capabilities (Batch Analysis and Parametric Analysis)

- Linear Static Analysis
- Construction Stage analysis (Concrete Creep & Shrinkage)
- Linear Buckling Analysis
- Heat Transfer

### Post-processing

- Contour/Vector/Diagram Plots
- Advanced Features (Probe/Multi Step Iso Surface/Extract/Cutting Diagram/Others)

## Structural Modules



Structural Rehabilitation FEM Based



Concrete Smeared Crack



Welded Contact Model

### Concrete Nonlinear Modules

- Smeared Concrete Crack
- Nonlinear Interface Material Models
  - Discrete Crack, Bond Slip, Coulomb friction
  - Combined Cracking-Shearing-Crushing, Nonlinear Elastic
- Plasticity Models ( von Mises, Tresca, Mohr-Coulomb & Drucker-Prager)

### Static Contact Analysis

- Static contact analysis (2D and 3D models / Material and Geometry nonlinearity)
- Contact Type (Welded, General, Bi-Directional, Sliding, Rough, Breaking-Weld)
- Auto Contact



Steel Nonlinear Analysis



Heat of Hydration



Response Spectrum Analysis

### Steel Nonlinear Module

- Geometrical Nonlinear Analysis
- Plasticity Models (von Mises & Tresca)
- Hardening behaviours

### Heat of Hydration Module

- Heat Transfer Analysis based on construction stages
- Convection, Heat Source, Pipe cooling, etc.

### Dynamic Module

- Eigenvalue Analysis
- Response Spectrum Analysis
- Linear Time History Analysis

# Geotechnical Modules

## Soil Nonlinear Module

### Nonlinear Material Models

- Elasto-plastic (Tresca/von Mises-Nonlinear/Mohr-Coulomb/Drucker-Prager/Hoek-Brown/ Modified Cam-Clay/Jardine(London clay)/Modified Mohr-Coulomb/Soft Soil Creep/UBCSAND/Sekiguchi-Ohta
- Nonlinear Elastic (Hyperbolic(Duncan-Chang)/D-Min)
- Strain Softening
- User supplied material for Plane Strain, Shell Joints and Volumetric Elements
- Nonlinear Elastic Interface/Coulomb Friction Interface
- Hysteresis Model (Modified Ramberg-Osgood/Modified Hardin-Drnevich)

### Nonlinear Static Analysis

## Slope Stability Analysis

- Strength Reduction Method (SRM)
- Stress Analysis Method (SAM)
- Construction Stage Analysis

## Seepage Analysis

- Steady State Analysis
- Transient Analysis
- Sequential Seepage-Stress Analysis
- Construction Stage Analysis

## Consolidation Analysis

- Semi-coupled Seepage-Stress Analysis (Static Boundary Conditions)
- Construction Stage Analysis

## Fully Coupled Stress-Seepage Analysis

- Fully Coupled Stress-Seepage Analysis (Transient Boundary Conditions)
- Construction Stage Analysis

## Fully Coupled Thermal - Seepage Analysis

- Fully-coupled Heat Transfer - Thermal Stress - Seepage Analysis
- Construction Stage Analysis

## Soil Dynamic Module

- 1D Free Field Response Analysis
- 2D Equivalent Linear Analysis
- Eigenvalue Analysis
- Response Spectrum Analysis
- Time History Analysis (Linear, Nonlinear)
- Nonlinear Time History Analysis with SRM - Construction Stage Analysis : Stress-Nonlinear Time History Analysis

# MIDAS Users (Partial list)



Central Water Commission



Geological Survey of India



Central Water And Power Research Station Pune



BARC



Odisha Sashan



BITS Pilani



IIT Delhi



IIT Roorkee



IIT Madras



IIT Dhanbad