SCAD Office

SCAD SOFT

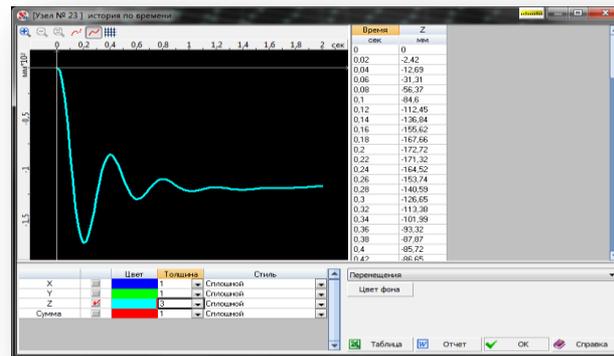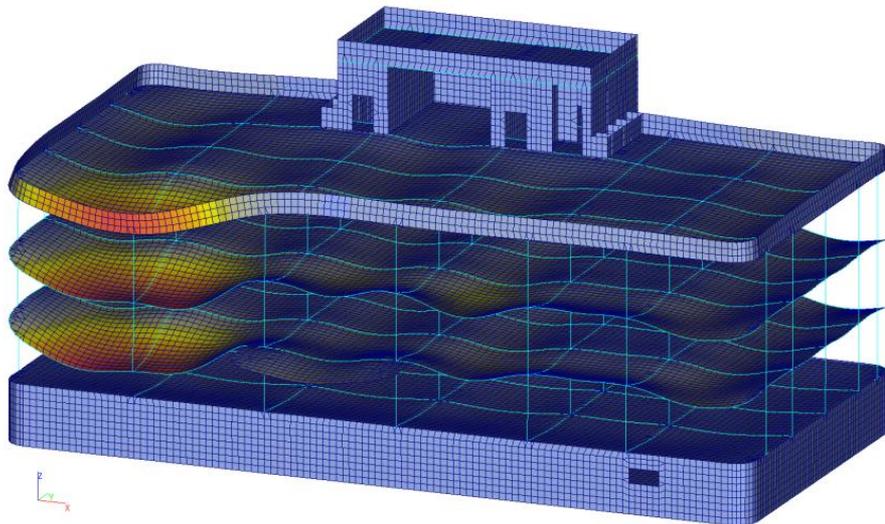# Integrated structural analysis system v. 25.1

**Integrated System SCAD Office 25.1**
**Structural FEA Software SCAD++**

**New Functionality**

Accounting for the time of failure initiation and failure duration of elements that triggered the collapse during nonlinear dynamic progressive collapse analysis
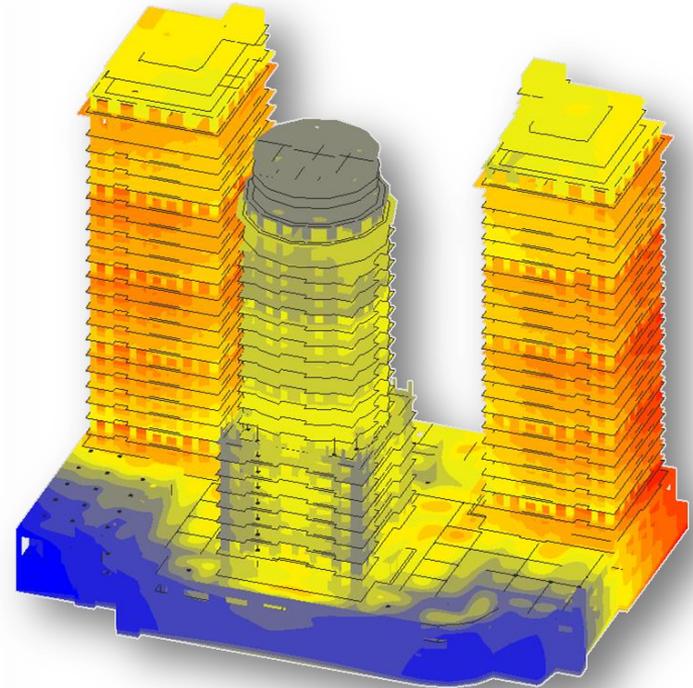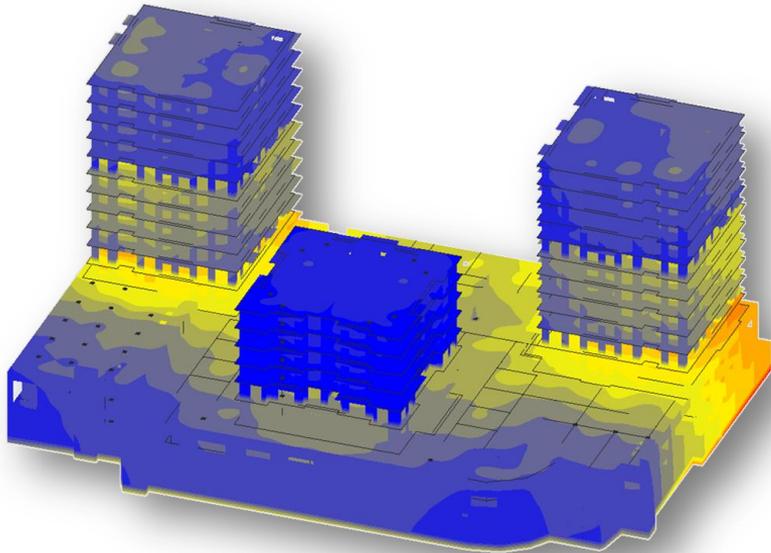
## New Functionality

**Structural analysis with a variable design model (ERECTION) taking into account nonlinear behavior**

## New Functionality

**Area loads can now be transferred to nodes, bars, and plates.**
**Loads may be applied either to all elements in the load plane**
**or only to the selected ones.**



**Area loads are converted into "elementary" loads applied to nodes, bars, or plates**

## New Functionality

A new load type, bimoment, has been implemented for the analysis of thin-walled members. The load may be applied as concentrated, uniformly distributed, or trapezoidal.
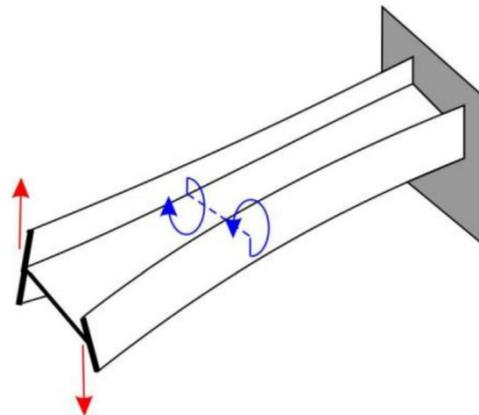


**Magnum (64-bit) - Geometric Properties**

File  Mode  Settings  Tools  Help

Section | Geometric Properties

| | Parameter | Value | Unit of measurement |
|---|---|---|---|
| A | Cross-sectional area | 24,34 | cm$^2$ |
| A$_{y,y}$ | Conventional shear are | 16,286 | cm$^2$ |
| A$_{y,z}$ | Conventional shear are | 7,815 | cm$^2$ |
| α | Angle of principal axes | -90 | degree |
| I$_y$ | Moment of inertia about | 1839,162 | cm$^4$ |
| I$_z$ | Moment of inertia about | 2334,148 | cm$^4$ |
| I$_t$ | Torsional moment of ine | 0,723 | cm$^4$ |
| i$_y$ | Radius of gyration abou | 8,693 | cm |
| i$_z$ | Radius of gyration abou | 9,793 | cm |
| Y$_s$ | Distance between mas: | 0 | cm |
| Z$_s$ | Distance between mas: | 0 | cm |
| W$_{u+}$ | Maximum section modu | 182,355 | cm$^3$ |
| W$_{u-}$ | Minimum section modul | 182,355 | cm$^3$ |
| W$_{v+}$ | Maximum section modu | 153,363 | cm$^3$ |
| W$_{v-}$ | Minimum section modul | 153,164 | cm$^3$ |
| I$_u$ | Maximum moment of ine | 2334,148 | cm$^4$ |
| I$_v$ | Minimum moment of ine | 1839,162 | cm$^4$ |
| i$_u$ | Maximum radius of gyra | 9,793 | cm |
| i$_v$ | Minimum radius of gyrat | 8,693 | cm |
| a$_{u+}$ | Core size along positive | 6,301 | cm |
| a$_{u-}$ | Core size along negativ | 6,293 | cm |
| a$_{v+}$ | Core size along positive | 7,492 | cm |
| a$_{v-}$ | Core size along negativ | 7,492 | cm |
| M | Mass per running meter | 19,107 | kg |

Menu    Report    Help

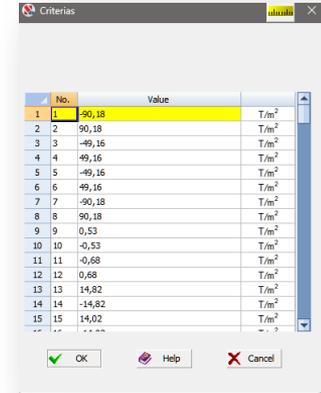**Analysis of cold-formed steel lattice sections**

**New Functionality**

The Information on the Element dialog box provides the values of all criteria obtained during the analysis of design combinations of forces.
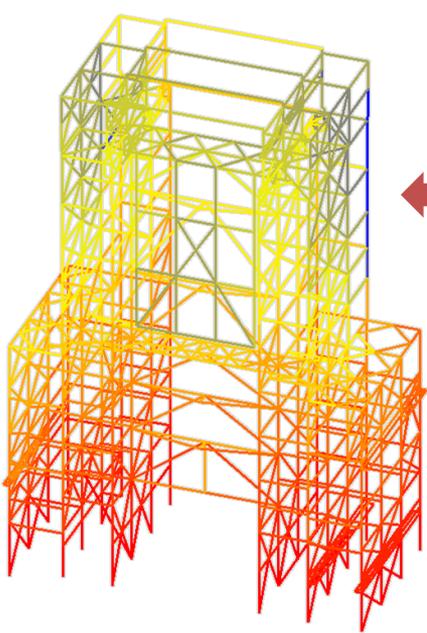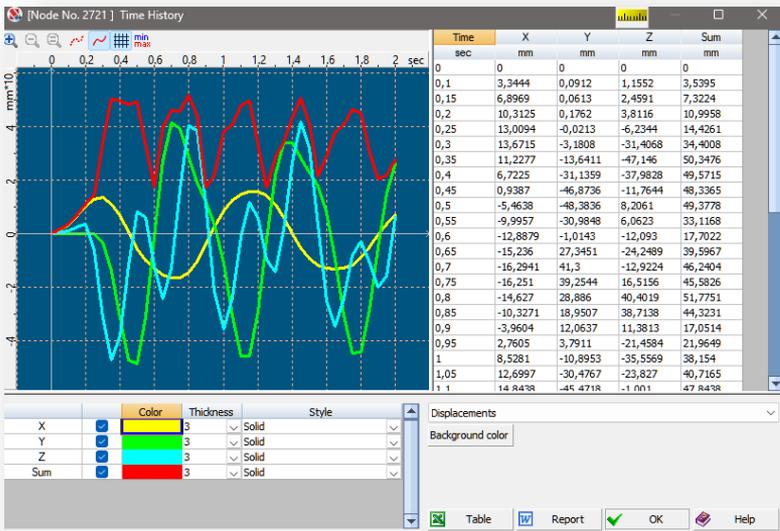
Color indication of deflections in the postprocessor for design combinations

Determination of unfavorable combinations of forces when calculating the tilt of a structure and the foundation slab

## New Functionality



**Display of min/max values of displacements, forces, and stresses for each time step using color scales during direct integration of the equations of motion.**

**Specification of elastic and inelastic subgrade for physically nonlinear plates.**

**Import/export of characteristics of physically nonlinear materials.**
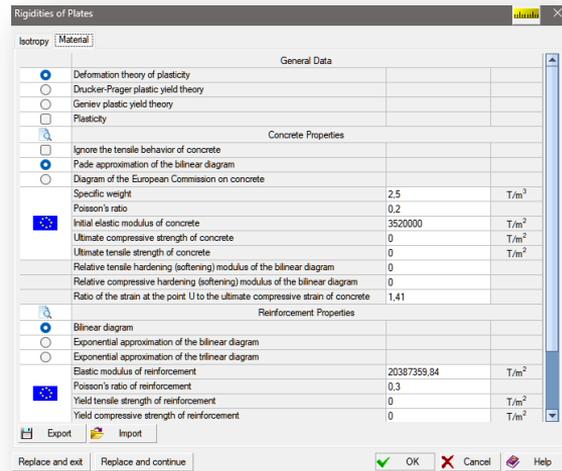
# Integrated System SCAD Office 25.1
## Structural FEA Software SCAD++

**New Functionality**

**The overturning analysis has been implemented.**



**Input of bar elements of a given length**
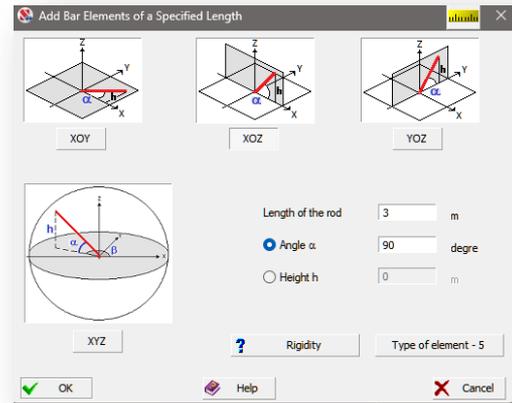


**Using groups of nodes in the initial data for design combinations**

**Display of bar segments with tensile reinforcement using color scales**

**Specification of the calibration frequency during direct integration of the equations of motion**

**New functionality of the FORUM preprocessor**
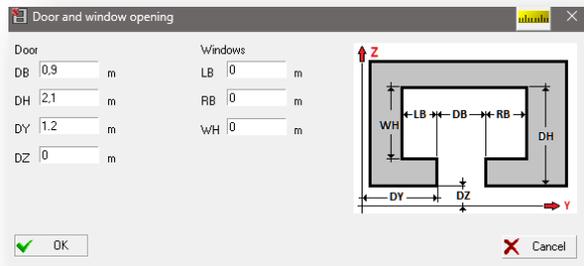


**Generation of parametric door and window openings (balcony blocks) has been implemented.**

**When generating a project file, adjacent bars and plates can be connected using rigid bodies.**

**Selected structural elements can be divided by cutting planes defined by one or three nodes.**
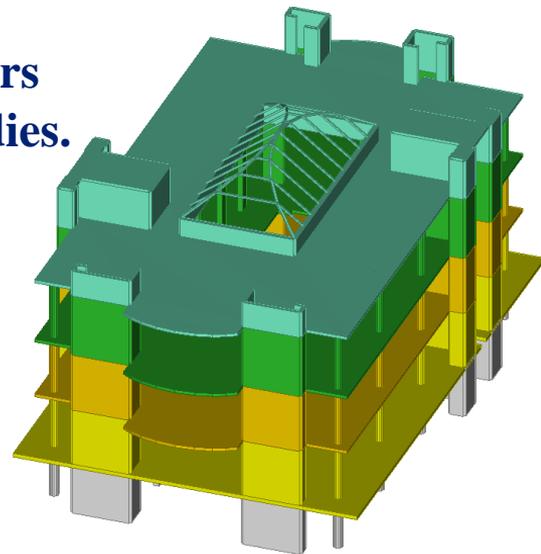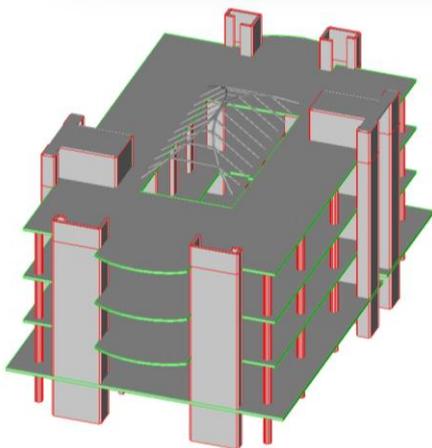
## New Functionality

When setting up the SCAD++ interactive graphical environment, you can use default settings or assign the active project's settings as the defaults.
Selecting an encoding when importing a text document.

## Implemented Design Codes

SCAD++ now supports analysis according to the following design codes:
NTP RK-08-01.2-2021, NTP RK-08-01.7-2021,
SN KR 20-02:2024*, SN KR 53-01:2024, SN KR 52-02:2024

EN 1993
Analysis of continuous steel beams considering the type of torsional restraint (hinged or rigid) at the design sections in each span

**New Functionality**

**EN 1993**
**Additional settings allow specifying whether a member belongs to a non-sway frame.**

**EN 1993-1-1**
**The calculation for bending moment and shear force has been refined.**
**Section class has been added to the list of design factors.**
**Steels from the national annexes of Ukraine and Kazakhstan have been added.**

**DBN**
**European steels are now supported.**

# Integrated System SCAD Office 25.1

## Satellites. New Functionality

### ARBAT

In the Strength of Reinforced Concrete Sections mode, double-clicking the load case number opens a dialog box showing the solution to the system of equations for the nonlinear deformation model.
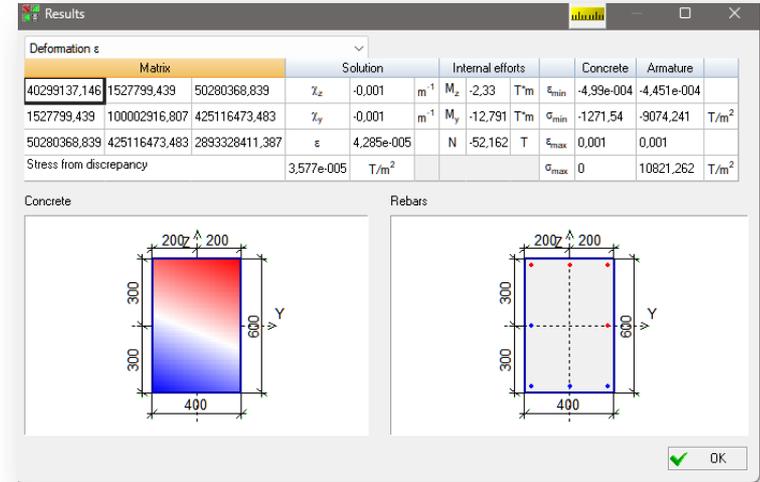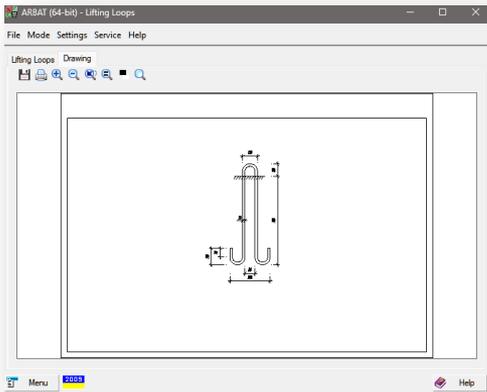
The generation of rafter loop drawings has been implemented.

**Satellites. New Functionality**

**MAGNUM**

**Calculation considering perforation**

**Analysis of continuous steel beams and purlins considering the type of torsional restraint (hinged or rigid) at the design sections in each span**

**Automatic consideration of protective cover thickness**
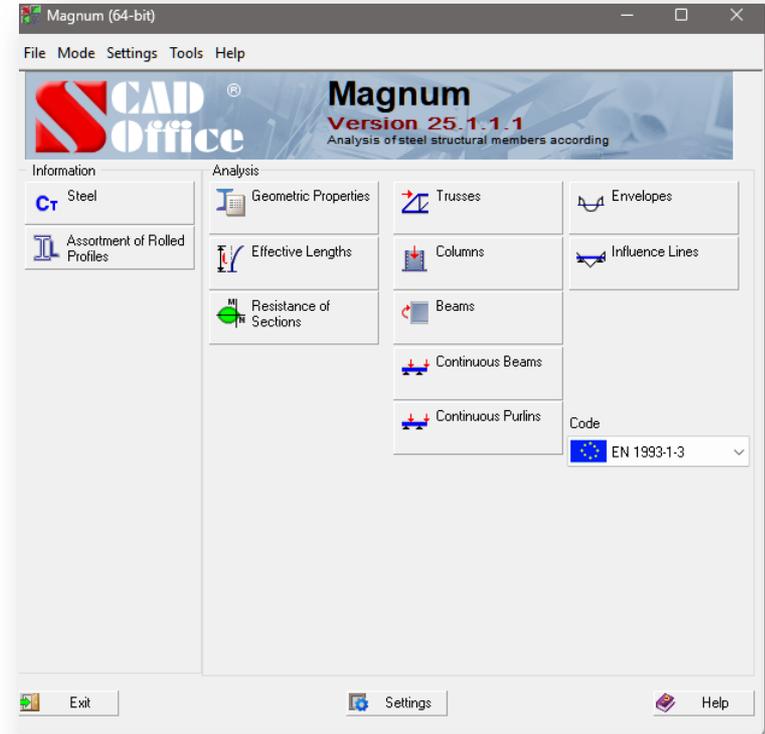
# Integrated System SCAD Office 25.1

**Satellites. New Functionality**

**DÉCOR**
**The calculation of beam deflections has been refined.**
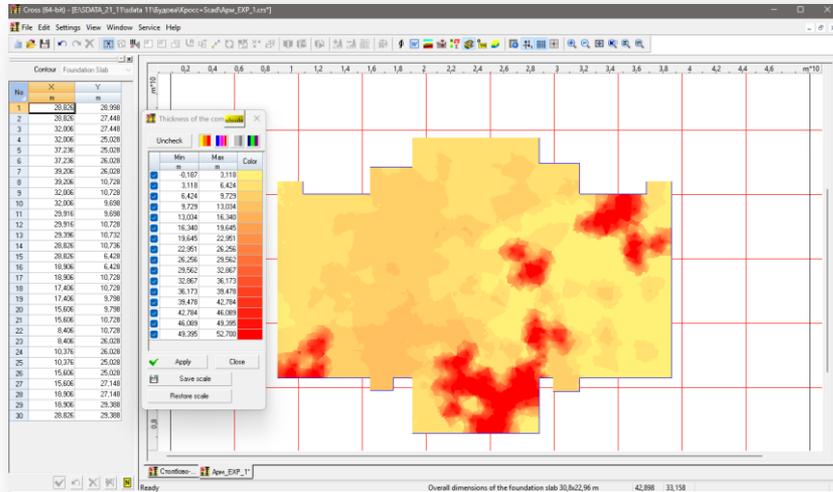


**CROSS**
**Generation of color fields representing the thickness of the compressible stratum.**

## Satellites. New Functionality

## ACCELEROGRAM EDITOR

**Synthesis mode now features a preview of balancing, baseline adjustment, and filtering.**

**Selecting an encoding when opening a file.**
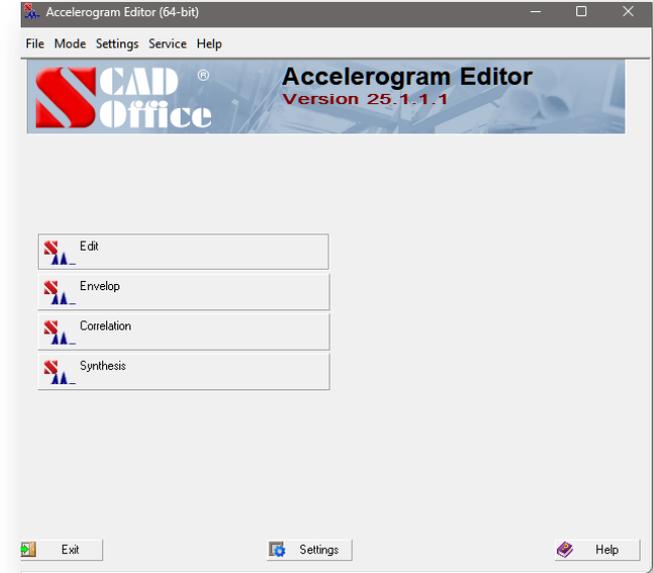


## KUST
**Calculation of the pseudoinverse matrix**

# Integrated System SCAD Office 25.1

**New Functionality**

**Added assortments of rolled steel profiles:**

Europe, Canada,
TU 25.11U23-002-97638531-2025,
Channels DIN 1026-2^2002-10

# Integrated System SCAD Office 25.1

**New Functionality**

**Data Exchange with BIM Software**

**Expanded IFC import/export capabilities**

**Added Add-in for data exchange with Revit 2026**

**Added Add-in for data exchange with Tekla 2024, Tekla 2025**

**Implemented import of SAF 2.2.0 files**