SCADA Pro® Flat Slab

SCADA Pro Flat Slab module for analysis and design is an advanced finite element solution that can operate independently or fully integrated with SCADA Pro Structural Analysis and Design software.

Key Features:
- Generates a true 3D model of an entire concrete building - detailed FEM analysis
- Supports import of various files and model formats (DWG/DXF files, ETABS/STA3D/PRO/3D Models, PC RF3)
- Generates buildings with complex details such as elevated floors and foundations containing different slab regions, walls, beams, columns, drop panels and openings
- Easy to draw support lines anywhere on slab - even for complex geometries
- Automatically accounts for all critical design sections - different approach between column/middle strips versus different slab regions
- Generates buildings with complex details such as elevated floors and foundations
- Special code considerations are taken into account:
  - Self-weight of slabs is automatically calculated and may be optionally excluded in the design - providing unlimited capabilities
  - Available for both 32-bit & 64-bit Windows
- Reinforcing
  - An equivalent rectangular shape for columns of arbitrary section shape
- Solution based on the selection of a powerful algorithm chosen from a list of state-of-the-art numerical optimization algorithms.
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SBC in SCADA Pro

Saudi Building Code (SBC) is a set of legal, technical and administrative regulations and requirements that specify the minimum standards of building construction in order to ensure public health and safety. The code takes into consideration the cultural and social environment, the climatic and natural conditions, as well as the soil types and material properties in the Kingdom.

In the latest version of SCADA Pro 16 the SBC Parts 301, 303, 304 and 306 have been implemented. Specifically:

1. 301 Structural – Loading and Forces
   - Load Requirements: SBC provides the minimum load requirements for the design of buildings and other structures. The loads and the appropriate load combinations are created simultaneously and automatically from the program.
   - Wind Loads Design: Both Methods, Simplified and Analytical, are included. A large set of tools guide the user in selecting correctly the various parameters. The software calculates automatically all the necessary values and carries out all the checks.
   - Base Area Calculation
   - Design of Footings
   - Design of members under Combined Forces and Torsion
   - Flexural and Axial Loads, Magnified Moments for Sway and Non-Sway Frames
   - Tension Members check
   - Classification of Steel Sections
   - Net and Gross Area Calculation. Effective Area of Tension members

2. 303 Structural – Soil and Foundations
   - Design of Foundations: All the required checks according to the Section 5.4 are performed.
   - Contact Pressure over total base area Calculation
   - Design of Footings
   - Special Provisions for Seismic Design has also been implemented
   - a. Load Requirements
   - b. Wind Loads Design
   - c. Seismic Design Criteria

3. 304 Structural – Concrete Structures
   - a. Design of Footings
   - b. Design of members under Shear and Torsion
   - c. Shear and Torsion
   - d. Design of members under Combined Forces and Torsion
   - e. Flexural-Torsional Buckling check
   - f. Flexural members check
   - g. Design of members under Shear and Torsion
   - h. Design of members under Combined Forces and Torsion
   - i. Complete library of all the types of steel connections

4. 306 Structural – Steel Structures
   - a. Design of Footings
   - b. Design of members under Shear and Torsion
   - c. Seismic Design Criteria

2-way communication between SCADA Pro & SAP2000 & ETABS

The two-way communication module is the structural design of projects of reinforced concrete, structural steel, masonry and wood developed in SAP2000/ETABS, by applying Eurocodes with National Annexes and Saudi Building Code (SBC) that are supported in SCADA Pro.

This procedure gives the capability, using analysis results derived from analysis performed in SAP2000 or ETABS, as input for the design of the structure according to Eurocodes and SBC, something that is absolutely limited in SAP2000 or ETABS.

In SCADA Pro there are the following advanced features additional to those in SAP2000 and ETABS:

1. Automatic slab recognition, loads import and design and detailing of reinforcement, which cannot be done in SAP2000.
2. Design of a structure based on multiple design code provisions (i.e., EC2, EC3, EC5, EC8(3), SBC, etc.) by applying the analysis results derived from SAP2000 and ETABS.
3. Design-checks that cannot be performed in SAP2000 or ETABS (e.g. Punching shear check, design-checks of bearing masonry structures, timber connections).
4. Take advantage of the advanced analysis types that SAP2000 and ETABS support.
5. Using the editors of steel reinforcement in SCADA Pro for detailed modification of rebars.
6. Creating structural drawings and detailing designs, that can be modified, continuity of beams and columns and complete print out results of the project.
7. Report in any regional language (e.g. English, German, Italian, Polish, Turkish)

In SCADA Pro the new bi-directional communication of SAP2000 and ETABS with SCADA Pro, allows export and import of any project in SCADA Pro and SAP2000/ETABS, respectively.

The main advantage of the two-way communication module is the structural design of projects of reinforced concrete, structural steel, masonry and wood developed in SAP2000/ETABS, by applying Eurocodes with National Annexes and Saudi Building Code (SBC) that are supported in SCADA Pro.

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