SCIA Concrete Section is a stand-alone application for the verification of reinforced concrete cross-sections, developed within the Design Forms environment. It offers a wide range of checks at the ultimate and serviceability limit states, in compliance with EN 1992-1-1. All checks are supported for predefined as well as arbitrary cross-section shapes. The reinforced cross-section may be subject to uniaxial or biaxial bending in combination with normal force, shear forces and torsion. Results are displayed in a numerical as well as a graphical way, including dynamic images of interaction diagrams and stress/strain distributions.

SCIA Concrete Section is a fast and intuitive calculation tool that is bound to make your daily work more efficient and pleasant. Quick check or detailed analysis? Your choice!

**Features**

- Verification of a reinforced concrete cross-section in compliance with EN 1992-1-1:2004/AC:2010-11, including country-specific parameters according to the main standard and a wide range of national annexes
- Cross-section library with
  - Selection of predefined cross-section shapes (rectangle, circle, T, …) and corresponding reinforcement templates, for both stirrups and longitudinal reinforcement bars
  - Definition of general cross-section shapes and arbitrary reinforcement positions by means of co-ordinates
- Cross-section loaded by by N, My, Mz, Vy, Vz and/or T
- Self-explanatory input dialogue

- High performance: adaptations to input data are immediately reflected in the output window
- Clear, transparent reporting, giving the user insight in the calculation and assisting him/her in dealing with the Eurocode
- Level of output detail chosen by the user (Summary table, Brief, Standard, Detailed, Internal Forces)
- Dynamic images accompanying the numerical output:
  - Drawing of cross-section incl. reinforcement layout
  - Stress and strain distributions in different limit states
  - 2D prints of 3D interaction diagrams
- Summary table with the result status of all checks
- Error/Warning/Note system to inform about possible issues
- Print and export to several file formats (e.g. PDF), including personalized header and footer
- Language of GUI and report output to be set separately by the user
- Support of multiple loading sets per limit state

**Content of the calculation**

For member type 'Beam'

- Concrete cover calculation
- Creep coefficient calculation

For member type 'Column' (as addition to member type 'Beam')
- Slenderness check
- Calculation of 2nd order bending moments (if required) and moments due to geometric imperfections

Checks at Ultimate Limit State:
- Capacity check for N-My-Mz interaction by interaction diagram methods
- Check of ultimate stresses and strains for N-My-Mz interaction by response check
- Check of interaction for for Vy-Vz-T (shear & torsion)
- Detailing provisions check

Checks at Serviceability Limit State:
- Stress limitation (for concrete as well as reinforcing steel)
- Crack width limitation
- Limitation of deflection

Design of longitudinal and shear reinforcement on Ultimate Limit State combination

For calculations going beyond the initial scope of EN 1992-1-1, advanced generic algorithms – in full compliance with the Eurocode assumptions – have been implemented.

Available Standards & National annexes