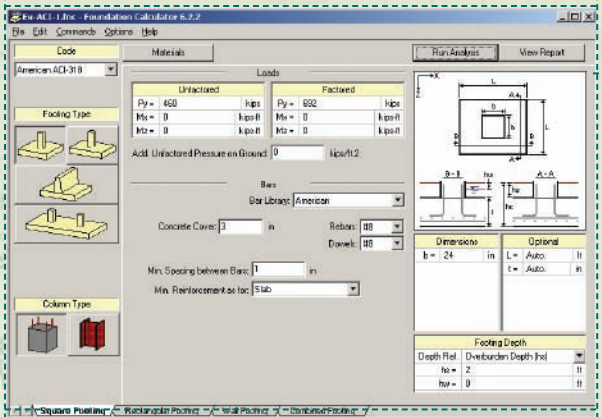
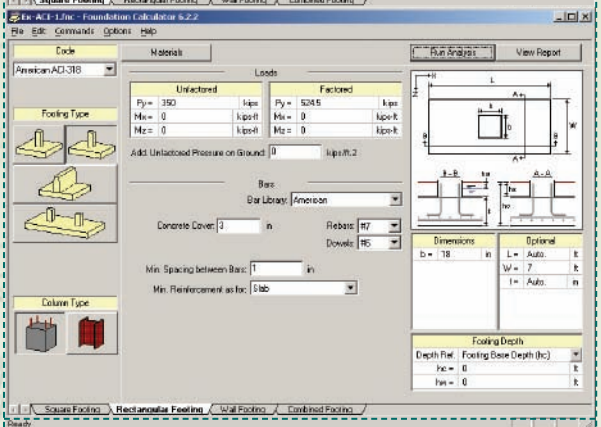
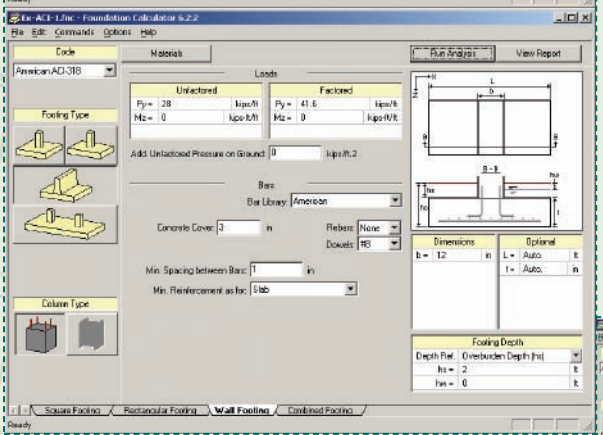
SAFI™ *Footing Calculator™*

The Footings Calculator™ is a simple and powerful tool which allows to analyze and design isolated square and rectangular footings, strip (wall) footings and combined footings.

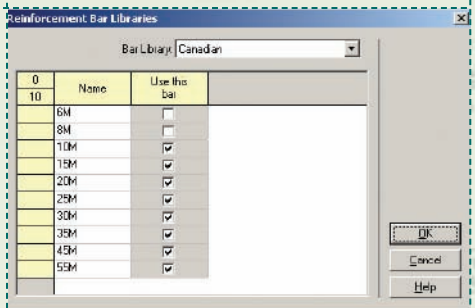


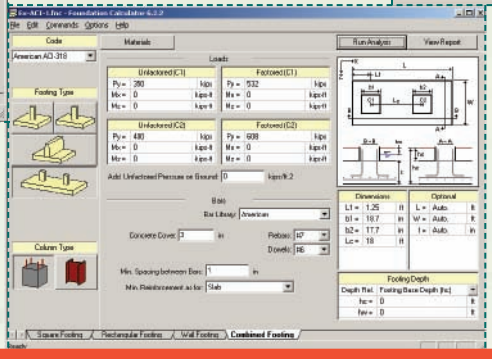




Technical *Specifications*

- Used as a stand-alone application or in combination with the SAFI™ Concrete design program.
- The Footings Calculator™ allows the user to quickly and easily design reinforced concrete footings without the need to create and analyze a complete structural model (nodes, members, load combinations, etc.).
- The Footings Calculator™ allows to perform the design of four different types of footings. Each type of footing can be designed with a certain type of column.
- Isolated square footing: reinforced concrete column or steel column
- Isolated rectangular footing: reinforced concrete column or steel column
- Strip footing: reinforced concrete wall
- Combined footing: reinforced concrete column or steel column
- It supports the American ACI-318-02 code, the Canadian CAN/CSA-A23.3-01 code, the Egyptian code ECCS 203-2001.

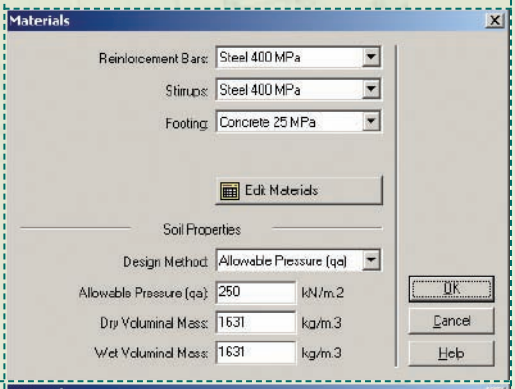


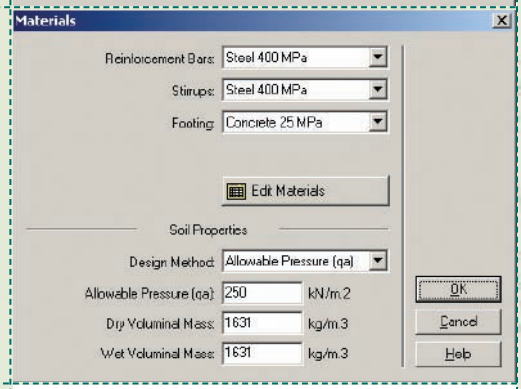


Potential users : *Engineers • Technicians and estimators • Architects • Infrastructures specialists Public works and municipalities • Governmental institutions • Academic institutions*

Technical *Specifications*

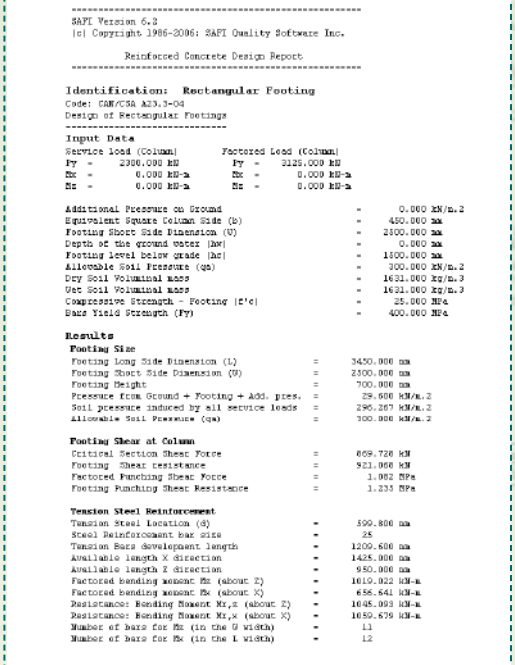
- The input data consist of entering the type of footing, the applied loads, additional pressure on ground, overburden depth, depth of the ground water, the required design parameters, the design code, the type of column (or wall) and optionally the dimensions.
- The reinforcement bars are selected from the built-in bar libraries. The bar libraries can be used independently from the design code so Canadian reinforcement bars can be used with the American ACI code for example.
- Libraries of standard metric and imperial material properties are available. Customized materials can also be created.
- The results consist of the footing size, footing shear, tension steel reinforcement, longitudinal bars, transversal bars, footing-column Interface Compression Steel, footing shear and stresses in concrete and bearing resistance
- Large number of solved problems and references are available.





Reports

- Analysis and design results are summarized on screen.
- Detailed reports are available in Rich Text Format (.rtf).
- Input data and results may be printed for a single footing or multiple footings.



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Reinforced Concrete Design Report

Identification: Rectangular Footing
Code: CAN/CSA A23.3-04
Design of Rectangular Footings

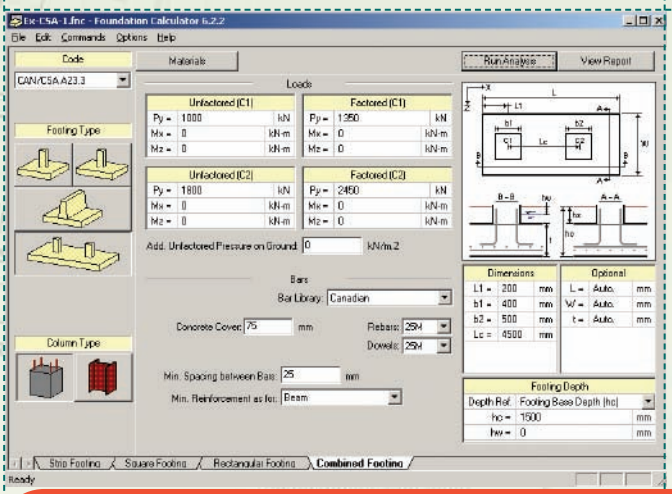
Input Data
Service Load (Column) | Factored Load (Column)
Fy = 2300.000 kN | Fy = 3125.000 kN
Mx = 0.000 kN-m | Mx = 0.000 kN-m
Mz = 0.000 kN-m | Mz = 0.000 kN-m

Additional Pressure on Ground = 0.000 kN/m.2
Equivalent Square Column Side (b) = 450.000 mm
Footing Short Side Dimension (W) = 2300.000 mm
Depth of the ground water (hw) = 0.000 mm
Footing level below grade (hz) = 1500.000 mm
Allowable Soil Pressure (qa) = 300.000 kN/m.2
Dry Soil Voluminal mass = 1631.000 kg/m.3
Wet Soil Voluminal mass = 1631.000 kg/m.3
Compressive Strength - Footing (f'c) = 25.000 MPa
Bars Yield Strength (Fy) = 400.000 MPa

Results
Footing Size
Footing Long Side Dimension (L) = 3450.000 mm
Footing Short Side Dimension (W) = 2300.000 mm
Footing Height = 700.000 mm
Pressure from Ground + Footing + Add. pres. = 29.600 kN/m.2
Soil pressure induced by all service loads = 296.267 kN/m.2
Allowable Soil Pressure (qa) = 300.000 kN/m.2

Footing Shear at Column
Critical Section Shear Force = 869.728 kN
Footing Shear resistance = 921.066 kN
Factored Punching Shear Force = 1.082 MPa
Footing Punching Shear Resistance = 1.235 MPa

Tension Steel Reinforcement
Tension Steel Location (d) = 590.800 mm
Steel Reinforcement Bar Size = 25
Tension Bars development length = 1209.600 mm
Available length X direction = 1425.000 mm
Available length Z direction = 950.000 mm
Factored bending moment Mz (about Z) = 1619.922 kN-m
Factored bending moment Mx (about X) = 686.641 kN-m
Resistance: Bending Moment Mz,z (about Z) = 1645.993 kN-m
Resistance: Bending Moment Mr,x (about X) = 1659.679 kN-m
Number of bars for Mz (in the W width) = 11
Number of bars for Mx (in the L width) = 12



SAFI,* *simply reliable since 1986

SAFI Quality Software Inc. • 3393, Chemin Sainte-Foy, Sainte-Foy, Quebec, Canada G1X 1S7
Phone: (418) 654-9454 • **Canada and USA : 1-800-810-9454** • Fax: (418) 653-9475
Web: www.safi.com • e-mail: info@safi.com