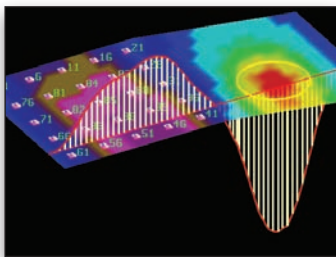




STAAD.foundation V8i

Comprehensive Foundation Design

STAAD.foundation V8i is the one-stop solution for foundation analysis and design. It addresses the building, plant and tower industries by combining common foundations like isolated, combined, pile cap, mat and industry-specific foundations like vessel foundation, driller pier and guyed tower foundation. It provides a stand-alone or integrated solution for simple and complex foundations.



Cutlines can be specified at any location along mat foundations

The software integrates all common footing designs including spread (isolated) footings, strip (combined) footings, pile-cap arrangement and design, octagonal footings, mat foundations, drilled pier foundations, and deadman anchor guy foundations.

Plant foundation mode contains vertical vessel and horizontal vessel foundations with different shapes and configurations. These accurate design capabilities are powered with wizard based input, automatic load (wind and seismic) generation and configurable load combinations tools. vertical vessel module supports for both octagonal and square shapes.

A wizard-based foundation solution mode called "foundation toolkit" is available for spread (isolated) footings, strip (combined) footings, pile cap arrangement, drilled pier foundations, and guyed tower foundations.

Comprehensive analysis and design

Currently, STAAD.foundation V8i supports six concrete codes: ACI-2005, BS 8110, IS-456-2000, AS 3600-2004, CSA 23.3-04 and GB50007-2002. These foundations can be on soil or on piles. Load types can be predetermined or user-defined with a customizable automatic load combination generator. Load combination tables based on PIP STC 01015 can be generated for plant foundations. Wind and zip-code based seismic loads based on ASCE 7, can also be generated through a simple wizard-based input. STAAD.foundation V8i automatically calculates footing-plan dimensions and thicknesses. It designs for one-way shear, punching shear, pile-punching shear, and corner-pile check. STAAD.foundation V8i calculates reinforcement along both axes (X and Z) and both faces (top and bottom). Its powerful 3D graphics enable engineers to quickly identify and investigate displaced shapes, stress contour, soil pressure, and reinforcement layout.

Integration with STAAD.Pro V8i®

STAAD.foundation V8i is seamlessly integrated with STAAD.Pro V8i (a leading product in structural analysis and design). Any analyzed STAAD.Pro file can be imported into STAAD.foundation V8i, while automatically bringing in all

column positions (and/or plates), attached column dimensional properties, support reactions, and loads. Any changes made to the column positions or loads can be re-imported to further evaluate the substructure.

Finite element analysis (FEM) for accurate and economical designs

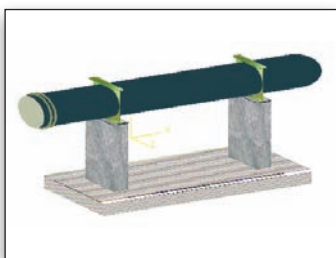
STAAD.foundation V8i employs a unique and innovative technique for formatting design that takes full advantage of 3D FEM analysis. This provides for an accurate and economical design. STAAD.foundation V8i designs the slab at thousands of discrete points while considering an unlimited number of load cases. This unique approach to creating user-defined reinforcing zones helps the user visualize and optimize the reinforcement requirement. The program automatically detects uplift and redistributes the force. A design along any user-defined line in the slab can be performed along with checks for punching shear for all column positions.

Unique, object-based modeling for complex foundations

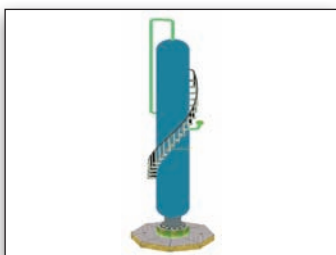
No matter how complex the foundation is, STAAD.foundation V8i can design it with its object-based modeling environment. Whether it is rectangular, complex polygonal, circular or includes openings, STAAD.foundation V8i tools can model, analyze, design, and produce drawings. In addition, both regular and irregular column lines can be modeled. The sophisticated mesh generation creates holes (cut-outs) and inner regions with different thicknesses for pedestals. Boundary/property line loads can be modeled with powerful physical loading objects such as circular load, quadrilateral load, line load, and point load.

Detailed drawings, schedule drawings, GA drawings, and thorough output including calculations

STAAD.foundation generates detailed drawings that include both plan and elevation and sectional views with rebar marks.



To address specific needs of the plant industry, STAAD.foundation includes modules for vertical vessel foundations (octagonal shape) and heat exchanger foundations



Vertical vessel foundation

System Requirements

Processor:

Intel Pentium or AMD Athlon

Operating System:

Windows 7, Vista, XP, and 2000

RAM:

500MB recommended

Hard Disk:

300MB free disk space
(2GB recommended)

Display:

OpenGL 3D graphics supported

Resolution:

1280x1024

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Schedule drawing gives a summary table for design results for all the footings. GA (general arrangement) drawing includes all the footings designed in the project to scale with grid lines and grid mark, along with north arrow that helps identify

interference. Drawings can be exported to DXF or DWG formats CAD packages to produce site drawings. Thorough output and detailed calculations are also provided that list all relevant clauses and equations.

STAAD.foundation V8i At-A-Glance

General footings

- Intuitive user-friendly graphical user interface; the workflow is categorized and arranged to flow from top to bottom
- Complete foundation project environment that includes isolated, combined, strip, pile cap, octagonal footing, and mat foundations; it connects all the modules through a global layer
- Tabbed view, navigator tree and floating toolbar
- Modeling wizard for rectangular mat foundation
- Physical mat foundation modeling environment that saves time and reduces errors
- Physical loading—like point load on space, quadrilateral load, circular load, or line load that allows user to simulate tank loading and wall loading
- Seamlessly integrates with STAAD .Pro V8i to import loadings, reactions, column positions; users can import any set of analyzed plates to design; tracks changes made in STAAD.Pro V8i model and can merge the changes with STAAD. foundation V8i file
- Powerful OpenGL-based graphics that help visualize output like displacements, stress on displaced shape, combined beam stress, and entities like plates and beams in 3D for a realistic rendered view
- Automatically transfers loads from the top of the pedestal to the base of the footing
- Automatically arranges piles
- Physical beam
- Automatically generates meshes while considering holes, control regions, and column lines; provides an option for both triangular and quadrilateral plates

Output

- DXF export of detailed and ga layout drawing to produce site drawing
- Detailed structural drawing of each footing with customizable drawing options and labels

- Base pressure and plate stress color contour
- Step-by-step detailed calculation sheet with code clauses and equations to verify output
- GA (general arrangement) drawing with grid mark which can be optimized, and to-scale drawing that detects overlaps and aids in selection of foundation type
- Foundation grouping for production drawing and sample calculation
- Printable bending moment and shear force graphs for combined footing
- User-defined cut lines through mat slabs to view bending moment and shear diagrams and designs
- Printable t-Z curve and Q-Z curve for drilled Pier foundation

Analysis and design

- Support for both flexible and rigid method
- Sophisticated FEM analysis for mat foundation powered by reliable staad analysis engine
- Support for unlimited number of load cases and load combinations
- Crack control check for isolated footing design
- Program undergoes iterative design procedure and considers final footing thickness based on concrete design for soil bearing check
- Physical tie beam that automatically converts to analytical members for analysis and provides output such as bending moment, shear and combined stresses
- Innovative and unique slab design to take full advantage of FEM analysis; produces user-defined reinforcing zones and blocks for optimal reinforcement distribution
- Slab design along any cut line to simulate manual mat design technique
- Automatically arranges pile using Boca standard
- Proper handling of biaxial moment for all footing types using finite difference approach
- Pedestal design

Design codes

- United States - ACI 318-2005
- United Kingdom - BS 8110
- India - IS 456-2000
- Australia - AS 3600-2004
- Canada - CSA A 23.3-04
- Chinese - GB50007-2002

Features specific for plant foundations

- Specific modules for the plant industry such as vertical vessel foundation and heat exchanger foundation
- Built-in load types like "empty," "operating," "test," and "Bundle pull force"
- Automatically load combination generation based on ASCE 7 and PIP STC 01015
- Automatically generates wind load and zip-code based seismic load based on ASCE 7
- Calculates time period
- Vertical vessel foundation can be on soil, octagonal or square pile cap

Foundation toolkit features

- Time-saving wizard-based input for (isolated) footings, strip (combined) footings, pile cap arrangement and design
- Input parameters categorized and arranged to flow per design procedure.
- Editable geometry view, enabling graphical footing dimensions
- Drilled pier module supporting API and FHWA 1999 and alternative vesic method
- Guyed tower foundation module based on ACI 318