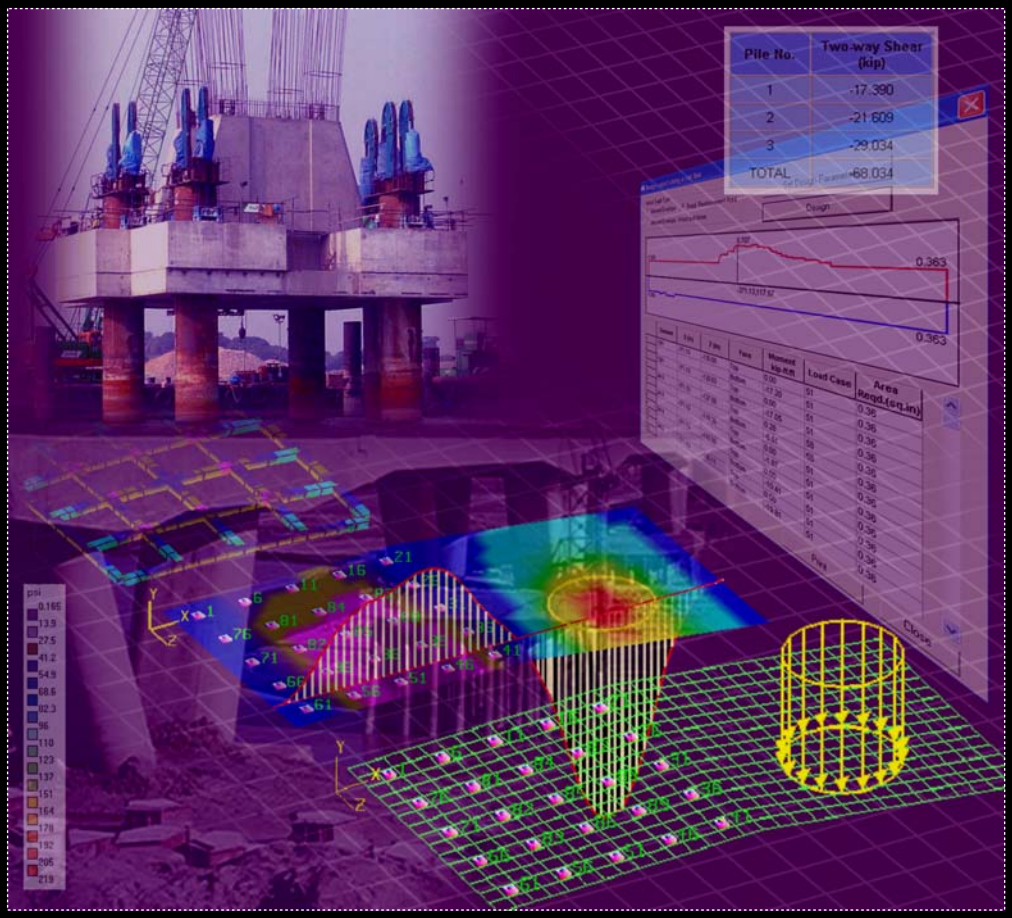
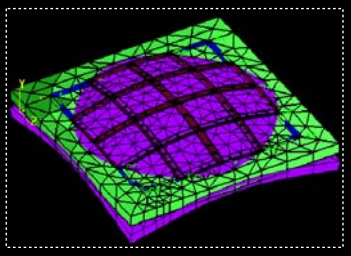
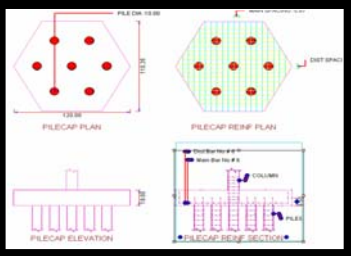
STAAD.*foundation*

Design of Mats, Footings and Pile Caps

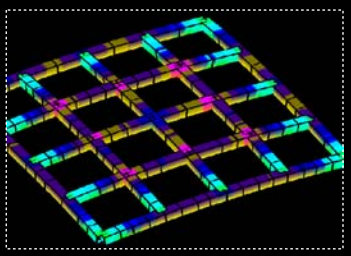




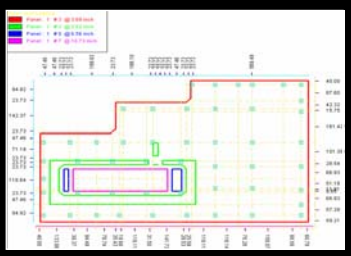
Analyze and design mat foundations



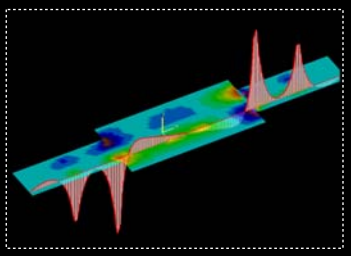
Perform pile arrangement as per BOCA



Design isolated or combined footings



Create detailed production drawings



Import all relevant substructure and superstructure data from STAAD.*Pro*

STAAD.*foundation* is a cost-saving downstream application that enables engineers to analyze and design the underlying foundation for the structure they created in STAAD.*Pro*. STAAD.*foundation* can automatically absorb the geometry, loads and results from a STAAD.*Pro* model and accurately **design isolated or combined footings, true mat foundations and even perform pile cap arrangements**.

STAAD.*foundation* not only analyzes and designs a myriad of foundation configurations, but will also produce production quality reports and detailed 3D rendering of your foundation structures. With full OpenGL graphics, engineers can clearly see the displaced shape, stress distribution, reinforcement layout and force diagrams of their supporting structure. All models use physical objects including physical beams and slabs that do not require meshing.

For mat design, STAAD.*foundation* utilizes a true finite element design using the individual element stresses rather than using column strips. STAAD.*foundation* can be used in a stand-alone mode or can be used integrated with STAAD.*Pro* where the support reactions from the main model and associated load cases are automatically brought in.

Total Foundation Project Management System

Includes project information, line and span of control, revision records and multi-job facility. Reduces cost of downtime to assemble the technical and managerial information.

Multi-Doc Environment

Multiple projects can be viewed simultaneously. Look at various mat scenarios for the same foundation.

Entity Based Concept

Physical entities are used so beams do not have to be broken into nodes and individual members if other members brace them. Slabs are treated as a physical object and are meshed internally by the program. Results and design are based on these physical objects rather than individual plates and beams.

Layer Concept

Segregate and reuse project information like geometry or loading from job to job.

Boundary Loading Concept

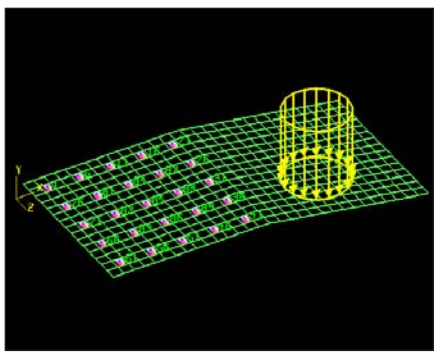
Apply boundary or constraint loads in addition to traditional loads.

True 3-D Graphics

The entities and the graphical representation of the output like displacement, force/moment and stresses are shown using OpenGL for a realistic rendered view.

Mat Design

- Quadrilateral or polygonal meshing along with holes.
- Intelligent meshing techniques considering the connected beams and column lines.
- True finite element design using the moments at the grid points on the elements.
- Punching shear and Wood and Armor moments (MXY) considered.



Boundary or Constraint Loading
(Represent Tanks, Machinery)

- Re-arrangement of reinforcement zones according to user's choice.
- Design performed along any arbitrary cut line.
- Stress contours available for a number of stress types (including base pressure) and plotted on deflected shape.
- Comprehensive report generation.
- Supports metric rebars for ACI codes
- Input / Output can be specified for any unit system

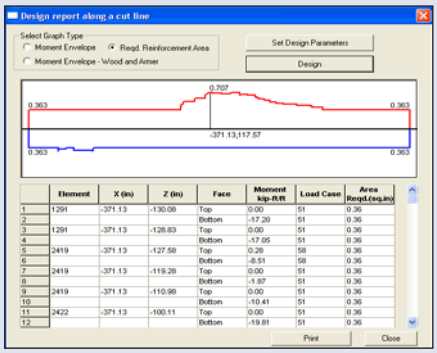
Pile Cap Design

Column No	No. of Piles	Pile cap Dimension			Reinforcement			
					X-Direction		Y-Direction	
		Length in	Width in	Thickness in	Max. Bar (A)	Bar & Spacing	Max. Bar (A)	Bar & Spacing
1	4	84	84	19	#9	#6 @ 4 in.	#9	#6 @ 4 in.
2	5	84	110.352	20	#9	#6 @ 4 in.	#10	#6 @ 6 in.
3	6	84	120	19	#9	#6 @ 4 in.	#10	#6 @ 5 in.
4	7	120	110.352	19	#10	#6 @ 5 in.	#10	#6 @ 5 in.
5	7	110.352	120	19	#10	#6 @ 7 in.	#10	#6 @ 6 in.
6	9	120	120	19	#10	#6 @ 6 in.	#10	#6 @ 5 in.

- Automated pile arrangement calculated according to BOCA standard
- Provision to include manual pile arrangement
- Display of individual pile reaction
- Design pile caps as per ACI-02

Slab on Grade Design

- Reinforcement layout grid can be set up along the actual reinforcement direction.
- Moments are calculated at each grid intersection point.
- Reinforcement zones are created automatically based on user input.
- Reinforcement zones can be edited according to site requirement.
- Comprehensive steel detailing drawing based on the reinforcement zones base.



Slab on Grade Design Along any Line

GA and Rebar Drawings

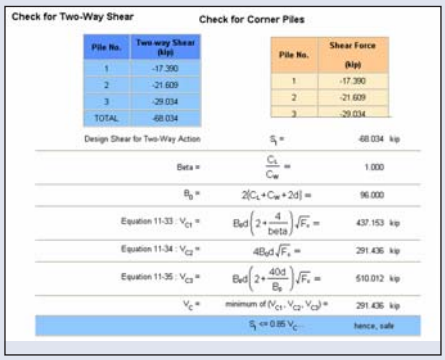
Create site-ready general arrangement drawings including reinforcing. Built-in CAD tools help customize the drawings to suit the exact needs at hand.

Results Stored in JetDB Format

Easily access results for further data mining, linking to other applications or other post-processing.

Web Enabled Calculation Sheet

Step-by-step calculations with formulas and code clauses verifying all output .



Step-by-Step Web-based
Calculations for Verification