Bentley
Advancing Infrastructure

PRODUCT DATA SHEET



STAAD.Pro®

Powerful Structural Analysis and Design Software

ANALYSIS AND DESIGN

STAAD.Pro is a powerful and integrated finite element analysis and design application that includes visualization capabilities, a simple user interface, and a wide range of design codes. You can analyze any structure exposed to static, dynamic, wind, earthquake, thermal, and moving loads. STAAD.Pro provides structural analysis and design for any type of project, including buildings, culverts, plants, bridges, stadiums, and marine structures.

The standard STAAD.Pro analysis methods provide you with a grounding in the structural and analysis requirements for an array of projects. When more advanced capabilities are required, you can extend to STAAD.Pro Advanced.

STAAD.Pro reduces the resource hours required to properly load your structure by automating the forces caused by gravity, wind, earthquakes, snow, or vehicles. STAAD.Pro can easily accommodate your design and loading requirements, including U.S., European, Indian, Chinese, and Japanese codes. With an unparalleled quality-assurance program, open architecture for customization, and a 25-year track record, more design firms are choosing STAAD.Pro.

EXTREMELY FLEXIBLE MODELING ENVIRONMENT

It is easy to get started. Along with tutorial movies, the application includes online help and dozens of examples to illustrate solutions to commonly raised modeling, analysis, and design issues.In fact, 80% of new users learn to use STAAD.Pro efficiently in under two hours.

BROAD SPECTRA OF DESIGN CODES

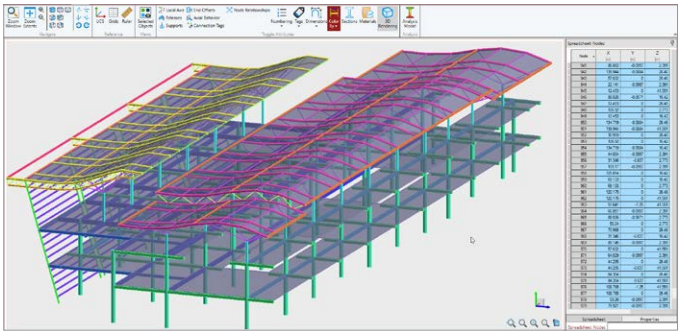
Take advantage of steel and concrete design codes from around the world, including a variety of historical versions. The breadth of design codes that are built into the program, both current and historical, makes STAAD.Pro equally comfortable for use on small local jobs as well as large international projects. Other materials can be included in the analysis. Rudimentary design checks are also possible. As a result, the software grows as your business does.

INTEROPERABILITY AND OPEN ARCHITECTURE

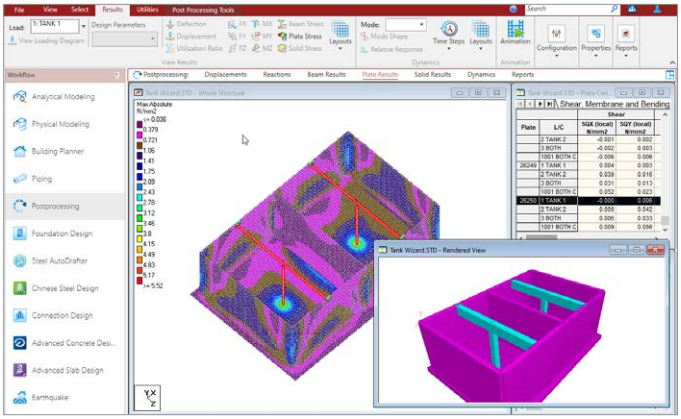
STAAD.Pro is more than an analysis and design application. From simple importing of CAD models to creating custom links and developing third-party applications, STAAD.Pro can be the heart of your structural solution. When integrated with ProjectWise®, your STAAD.Pro models can be efficiently managed with the leading project collaboration system. With iTwin® Analytical Synchronizer integration, STAAD® models become part of an integrated BIM workflow with products such as ProStructures, OpenBuildings® Designer, Revit, and Tekla.

QUALITY ASSURANCE

STAAD.Pro development undergoes the most demanding quality and testing programs. Our procedures follow the requirements of 10CFR Part 50 Appendix B, 10CFR Part 21, and ASME NQA-1, which means STAAD.Pro has been approved for use on the design of nuclear power installations.



Physical modeling capabilities enable engineers to improve participation in BIM workflows, automatically generating the analysis models for both simple and complex structural analysis.



Make use of automated routines to rapidly prototype standard models with structural wizards and macros.

SYSTEM REQUIREMENTS

MINIMUM: Windows 10 or 11 (64-bit OS), Intel® Pentium or AMD processor 3.0 GHz or greater, 1 GB memory, 500 MB storage, graphics card and monitor with 1280 x 1024 resolution and 256 color display

RECOMMENDED: 2 GB memory, 16-bit high color graphics card

STAAD.Pro At-A-Glance

USER INTERFACE

- Structural grids
- Tooltips to highlight data
- Frame generators
- Structure wizard for simple analytical models, or with the physical model to aid with an integrated solution
- Simple wire frames for speed, accuracy, and ease of use
- Fully rendered 3D models for clear mass distribution and presentation
- Advanced IDE style editor with IntelliSense, database integration, and context-sensitive help
- Triangular or quadrilateral meshes created from zones within defined models or imported from DXF files
- Meshes automatically refined to account for loading and changes in geometry when part of a physical model
- Load generators, including seismic UBC, IBC, ASME wind and snow
- Steel detailing and concrete modeling capabilities when used with a subscription program

OBJECTS

- Standard linear, curved, and physical beams, compression/tension only, with databases of sections from around the world
- 3- or 4-noded 2D plates and surface objects with holes
- Solid 3D bricks from 4- to 8-noded
- Supports, including foundation and multilinear springs
- Full range of loads for static and dynamic analysis that can be defined explicitly or calculated using the wide range of load generators
- Nodal controls and dependencies, and floor diaphragms to capture real-world behavioral relationships
- Nonstructural loading panels and reference lines to associate spatial loads to the model

ANALYSIS

- Traditional first-order elastic analysis, including iterative one-way analysis
- Both large and small P-Delta analysis, including stress-stiffening effects
- Account for imperfections in structural geometry
- Direct analysis as per AISC 360
- Buckling analysis using either eigen (requires STAAD.Pro Advanced) or iterative methods
- Geometric nonlinear analysis (requires STAAD.Pro Advanced)
- Dynamic modal analysis, including stress-stiffening eigen solution and steady-state options, time history, and response spectrums
- Section wizard to calculate properties of built-up sections, drawn freehand, parametrically defined, or imported from a CAD drawing
- Bentley servers to perform cloud-based analysis directly from a desktop to free local resources and use the results for a comparative solution analysis

POST PROCESSING

- The STAAD.Pro interface is configured to suit the model to ease access to the required data
- Interactive graphics, with linked tables and windows to receive direct feedback from one item in related windows
- Output files with simple, clear information to verify the analysis
- Create high-quality documents
- Create contoured stress plots using automatic or user-configured scales, colors, and limits
- Animations for viewing displacements, stress contours, or mode shapes dynamically

INTRAOPERABILITY

- RAM® Connection enables joints defined in the model with the forces calculated from the analysis to be passed into the leading connection design application
- Pass the STAAD.Pro structural steel frame into AutoPIPE® to correctly account for the pipe support stiffnesses and import pipe engineer support reactions back into the model for design accuracy
- Import the STAAD.Pro support reactions and positions into STAAD Foundation Advanced to design the structure foundations
- Floor slabs can be identified and linked to RAM Concept for conventionally reinforced and/or post-tensioned concrete design and detailing in an innovative application
- Two-way link to support creating models in ProStructures and OpenBuildings Designer with design and construction documents
- OpenSTAAD™ is an API from which STAAD data can be extracted directly into custom programs or applications such as Microsoft Word or Excel
- Use OpenSTAAD to drive the creation of STAAD.Pro models, run the analysis, and view the results with your own interface
- Use CAD models in .DXF files as the base wire frame, structural grid, or outline of a complex deck that needs to be meshed
- Exchange CIS/2 data with other steel design packages
- Export models to ADINA to solve complex nonlinear problems

DESIGN AND DOCUMENTATION

- Choose from 50 steel design codes from around the world
- Integrated steel drawing production using Steel Autodrafter (requires subscription program)
- Integrated concrete design, detailing, and drawing production (requires STAAD.Pro Advanced, Structural WorkSuite, or STAAD Advanced Concrete Design license)

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PRODUCT DATA SHEET



STAAD.Pro® Advanced

Comprehensive Structural Analysis and Design Software

STAAD.Pro Advanced is a comprehensive and integrated finite element analysis and design offering that includes a state-of-the-art user interface, visualization capabilities, and international design codes. It can analyze any structure exposed to static, dynamic, wind, earthquake, thermal, and moving loads. STAAD.Pro Advanced provides structural analysis and design for any type of project, including towers, buildings, culverts, plants, bridges, stadiums, and marine structures.

ANALYSIS AND DESIGN

The software extends the scope of the standard version of STAAD.Pro with linear static, response spectra, time history, cable, imperfection, pushover, and nonlinear analyses. STAAD.Pro Advanced provides your engineering team with a scalable solution that will meet the demands of your project.

STAAD.Pro Advanced reduces the resource hours required to properly load your structure by automating the forces caused by gravity, wind, earthquakes, vehicles, or vibration. No matter what material you use or in which country you design your structure, STAAD.Pro Advanced accommodates your design and loading requirements, including for United States, European, Nordic, Indian, and Asian codes. Special codes, such as AASHTO, ASCE 52, IBC, and the U.S. aluminum code, are accommodated at no extra cost.

With an unparalleled quality-assurance program, open architecture for customization, and a 25-year track record – including being used on such projects as MCI Stadium in Washington D.C., Wimbledon Court No.1 in London, and the tallest transmission tower in Asia – STAAD.Pro Advanced is the perfect structural engineering workhorse for your design firm.

EXTREMELY FLEXIBLE MODELING ENVIRONMENT

The power of STAAD.Pro Advanced is in an interface based on the latest programming technology. Along with tutorial movies, the application includes online help and dozens of examples to illustrate solutions to commonly raised modeling, analysis, and design issues. Eighty percent of new users learn to efficiently use STAAD.Pro Advanced in less than two hours.

BROAD SPECTRA OF DESIGN CODES

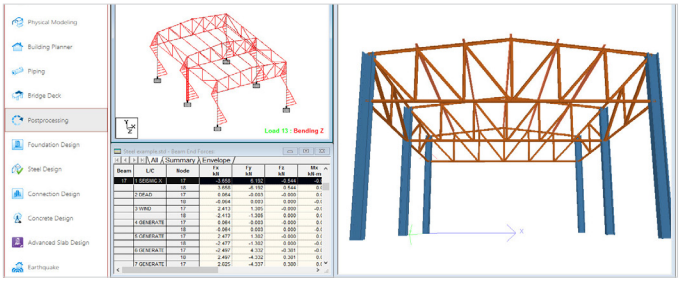
Steel and concrete design codes from around the world, including a number of historical codes, mean that you can take STAAD.Pro Advanced to wherever your company works.

INTEROPERABILITY AND OPEN ARCHITECTURE

STAAD.Pro Advanced is more than an analysis and design application. From simple importing of CAD models to creating custom links and developing third-party applications using OpenSTAAD™, STAAD.Pro Advanced can be the heart of your structural solution. When integrated with ProjectWise®, your STAAD.Pro models can be efficiently managed with the leading project collaboration system. With iTwin® Analytical Synchronizer integration, models become part of an BIM workflow with products such as ProStructures®, OpenBuildings® Designer, Revit, and Tekla.

QUALITY ASSURANCE

STAAD.Pro and STAAD.Pro Advanced undergo the most demanding quality and testing programs. Our procedures follow the requirements of 10CFR Part 50 Appendix B, 10CFR Part 21, and ASME NQA-1 so that STAAD.Pro and STAAD.Pro Advanced have been approved for use on the design of nuclear power installations.



Clear workflow-based GUI supports user configurations and layouts.

SYSTEM REQUIREMENTS

MINIMUM: Windows 10 or 11 (64-bit OS), Intel® Pentium or AMD processor 3.0 GHz or greater, 1 GB memory, 500 MB storage, graphics card and monitor with 1280 x 1024 resolution and 256 color display

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STAAD.Pro Advanced At-A-Glance

USER INTERFACE

- Structural grids
- Tooltips to highlight data
- Frame generators
- Structure wizard for simple analytical models, or with the physical model to aid with an integrated solution
- Simple wire frames for speed, accuracy, and ease of use
- Fully rendered 3D models for clear mass distribution and presentation
- Advanced IDE style editor with IntelliSense, database integration, and context-sensitive help
- Triangular or quadrilateral meshes created from zones within defined models or imported from DXF files
- Meshes automatically refined to account for loading and changes in geometry when part of a physical model
- Load generators, including seismic UBC, IBC, and ASME wind and snow
- Steel detailing and concrete modeling capabilities when used with a subscription program

OBJECTS

- Standard linear, curved, and physical beams, compression/tension only, with databases of sections from around the world
- 3- or 4-noded 2D plates and surface objects with holes
- Solid 3D bricks from 4- to 8-noded
- Supports, including foundation and multilinear springs
- Full range of loads for static and dynamic analysis that can be defined explicitly or calculated using the wide range of load generators

ANALYSIS

- Traditional first-order elastic analysis, including iterative one-way analysis
- Both large and small P-Delta analysis, including stress-stiffening effects
- Account for imperfections in structural geometry
- Direct analysis as per AISC 360
- Buckling analysis using either eigen or iterative methods
- Geometric nonlinear analysis
- Dynamic modal analysis, including stress-stiffening eigen solution and steady-state options, time history, and response spectrums
- Advanced solver that is up to 1,000 times faster than the standard solver
- Shape Editor to calculate properties of built-up sections, drawn freehand, parametrically defined, or imported from a CAD drawing

DESIGN AND DOCUMENTATION

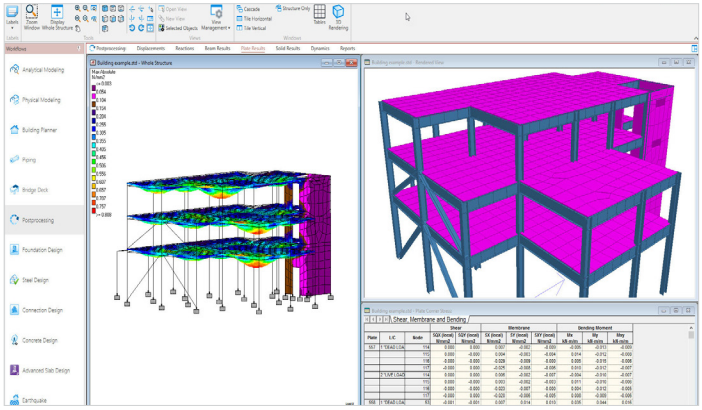
- Choose from 50 steel design codes from around the world
- Integrated steel drawing production using Steel Autodrafter
- Select from 40 concrete design codes, either in batch processing or the interactive concrete design mode
- Integrated concrete design, detailing, and drawing production via advanced concrete design
- Support for four timber design codes
- Shear wall designs for U.S., Indian, and British codes

POST PROCESSING

- The STAAD.Pro Advanced interface is configured to suit the model to ease access to the required data
- Linked tables and windows to gain direct feedback from one item in related windows
- Simple, clear information to verify the analysis and output the file
- Create high-quality documents
- Use automatic or user-configured scales, colors, and limits to create contoured stress plots
- View displacement, stress contour, or mode shape animations dynamically

INTRAOPERABILITY

- RAM® Connection enables joints defined in the model with the forces calculated from the analysis to be passed into the leading connection design application
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- Import the STAAD.Pro support reactions and positions into STAAD® Foundation Advanced to design the structure foundations
- Floor slabs can be identified and linked to RAM Concept
- Two-way link to support creating models in ProStructures and OpenBuildings Designer with design and construction documents
- OpenSTAAD is an API from which STAAD data can be extracted directly into custom programs or applications such as Microsoft Word or Excel
- Use OpenSTAAD to drive the creation of STAAD.Pro models, run the analysis, and view the results with your own interface
- Use CAD models in .DXF files as the base wire frame, structural grid, or outline of a complex deck that needs to be meshed
- Exchange CIS/2 data with other steel design packages
- Export models to ADINA to solve complex nonlinear problems



Analyze and design any structure exposed to a wide range of loads.

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