Addressing the increasingly complex global seismic requirements as well as the need to integrate the wide array of tools used by professional structural engineers, STAAD.Pro 2006 continues to be the world’s most widely-used, customizable and user-friendly structural solutions software. STAAD.Pro 2006 is a combination of a robust 3D multi-material structural modeler with a powerful analysis and design engine capable of solving the most complex linear elastic, soil-structure interaction, dynamics and plastic analysis problems. Over 20,000 structural engineering firms from around the world have used STAAD.Pro's exhaustive design tools for steel, concrete, timber, aluminum and composite sections to design low- and high-rise buildings, petrochemical and industrial plants, towers, bridges, foundations, culverts and much more. Intelligent modeling and interoperability empower structural engineers to use powerful structural objects like floors (composite or non-composite), slabs, joists, shear walls and bridge decks to assemble, analyze, design and connect their structure in one integrated environment.

STAAD.Pro 2006 was designed to streamline the structural engineer’s workflow and eliminate the loss of data incurred by using several disjointed applications to exchange information. Full design of a reinforced or post-tensioned concrete elevated slab using RAM Concept can be performed in a matter of hours. A mat foundation or pile cap arrangement can be designed and detailed automatically using the critical forces from the super structure with STAAD.foundation. A robust library of elements including truss, beam, plate, solid, cable and surface along with complex load generators for wind, snow, wave, gravity, vehicle and seismic help save engineers THOUSANDS of hours and expedite the time to actual production. The new STAAD.Pro 2006 includes an optional advanced analysis module with a full pushover analysis (performance based design) as per FEMA 356/440 and steady state analysis. It also improves the efficiency of the popular STAAD.Pro design routines by automatically calculating the unbraced length factors, reporting transfer forces for connection design and introducing a new PBEAM that allows the modeling of physical members. With enhancements to OpenSTAAD, engineers can now seamlessly integrate STAAD.Pro with MathCAD and Excel sheets eliminating the manual transfer of data. STAAD.Pro 2006 is the professional engineer’s choice for an end-to-end, multi-material structural software solution.

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Model with Physical Members

Optional Pushover Analysis per FEMA 356/440

Calculate Transfer Forces for Connection Design

Steady State and Harmonic Response Analysis

Complete Structural Engineering Solution
STAAD.Pro is the professional’s choice for steel, concrete, timber, aluminum and cold-formed steel design of low and high-rise buildings, culverts, petrochemical plants, tunnels, bridges, piles and much more!

STAAD.Pro was developed by practicing engineers for practicing engineers around the globe. It has evolved over 25 years and is constantly guided by a premier industry-based steering committee. For static, dynamic, P-delta, pushover, imperfection, buckling or cable analysis, STAAD.Pro is the industry standard.

STAAD.Pro supports multi-material design codes such as timber, steel, cold-formed steel, concrete, composite and aluminum. Over the past 20 years, our customers have designed everything from residential buildings to skyscrapers to tanks to tunnels and even a piano! STAAD.Pro’s dynamic and soil-structure interaction capacities along with our exhaustive design output sets STAAD.Pro apart from our competitors.

STAAD.Pro has steel and concrete building codes for over 40 territories including US, Britain, Mexico, Canada, Australia, Russia, France, Germany, Spain, Norway, Finland, Sweden, India, China, Euro Zone, Japan, Denmark, and Holland. More are constantly being added.

STAAD.Pro is fully COM (Component Object Model) compliant and is designed using an open architecture (OpenSTAAD). Any third party or in-house application can be seamlessly integrated with STAAD.Pro. Also, STAAD.Pro can be customized to perform the specific structural requirements of the user.

STAAD.Pro’s User Interface is the industry standard. Complex models can be quickly and easily generated through powerful graphics, text and spreadsheet interfaces that provide true interactive model generation, editing and analysis.

STAAD.Pro easily generates comprehensive custom reports for management, architects, owners, etc. Reports contain only the information you want, where you want it. Add your own logo as well as graphical input and output results. Export all data to Microsoft Word or Microsoft Excel!!

STAAD.Pro is designed for engineers, by engineers who understand the process of modeling, analyzing and designing a structure. Our 25+ years of experience, along with suggestions and input from practicing engineers, has helped make STAAD.Pro the easiest-to-use Structural Analysis and Design software on the market today.

The following key STAAD.Pro tools help simplify ordinarily tedious tasks:

• The STAAD.Pro Graphical User Interface incorporates Research Engineers’ innovative tabbed page layout. By selecting tabs, starting from the top of the screen and heading down, you input all the necessary data for creating, analyzing and designing a model. Utilizing tabs minimizes the learning curve and helps insure you never miss a step.

• The STAAD.Pro Structure Wizard contains a library of trusses and frames. Use the Structure Wizard to quickly generate models by specifying height, width, breadth and number of bays in each direction. Create any customizable parametric structures for repeated use. Ideal for skyscrapers, bridges and roof structures!

To help simplify modeling complicated structures, STAAD.Pro’s Graphical User Interface can accept cut and paste data from a spreadsheet program such as MS Excel. For example, nodes for curved geometry, which can be defined using a hyperbolic function, can be computed in MS Excel, then cut and pasted into STAAD.Pro, eliminating hand calculations. This is especially useful for structures like bridges, cooling towers, pressure vessels, and even roller coaster tracks.

STAAD.Pro Overview

• “ Concurrent Engineering” based user environment for model development, analysis, design, visualization and verification

• Full range of analysis including static, P-delta, pushover, response spectrum, time history, cable (linear and non-linear), buckling and steel, concrete and timber design

• Specialty design for castellated beams and bar joists and joint girders

• Object-oriented intuitive 2D/3D graphical model generation

• Pull down menus, floating tool bars, tool tip help

• Quick data input through property sheets and spreadsheets

• Customizeable structural templates for creating a model

• Complete support of VBA macros for customization (integrate with MathCAD or Excel)

• Supports truss and beam members, plates, solids, linear and non-linear cables and curvilinear beams

• Advance automatic load generation facilities for wind, snow, area, floor and moving loads

• Flexible zoom, pan and multiple views

• Isometric and perspective views and 3D shapes

• Toggle display of loads, supports, properties, joints, members, etc.

• Built-in command file editor for text editing

• State-of-the-art graphical pre and post processors

• Rectangular/cylindrical coordinate systems with mix and match capabilities

• Joint, member/element, mesh generation with flexible user-controlled numbering scheme

• Import/Export DXF, DWG, VRML, CIS/2 and Excel files

• Efficient algorithm minimizes disk space requirements

• EPS, metric or SI units

• Presentation quality printer plots of geometry and results as part of run output

• Script style programming language to extract data and execute external software

• Performs multiple analyses in the same run - perfect for phase or stage construction

• Interoperable with other leading engineering software including Frameworks Plus, Bentley Structural/MicroStation, RAM Concept, TEKLA Structures, DESCON, LARSA and Structural Desktop

Graphics Environment

Model Generation

• Easy auto mesh and auto refinement of user-defined polygonal element boundary by simple mouse clicks, including openings and column/wall lines

• Unlimited Undo and Redo

• More structure wizard models including user-defined parametric structures to create any structural template.

• Interactive menu-driven model generation with simultaneous 3D display.

Why STAAD.Pro

• STAAD.Pro has full support of ASCE and AISC codes.

• STAAD.Pro supports design of building elements such as beams, columns, pipes, bars, plates, panels, walls, slabs, towers, shells, frames, trusses, arches, hyperboloids, paraboloids, cylinders, cones,...

• STAAD.Pro supports soil-structure interaction capacities along with our exhaustive design output sets STAAD.Pro apart from our competitors.

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To help simplify modeling complicated structures, STAAD.Pro’s Graphical User Interface can accept cut and paste data from a spreadsheet program such as MS Excel. For example, nodes for curved geometry, which can be defined using a hyperbolic function, can be computed in MS Excel, then cut and pasted into STAAD.Pro, eliminating hand calculations. This is especially useful for structures like bridges, cooling towers, pressure vessels, and even roller coaster tracks.
Design Codes

- Design codes include AISC (ASD and LRFD 2nd & 3rd Ed.), AISI and AASHTO. Optional codes available include ASCE 52, BS5400, BS5950, Canadian, South African, Chinese, French, German, Japanese, Korean, Mexican, Russian and South African. Shapes include I-Beams with or without cover plates, channels, angles, double angles/channels, pipes and tubes (HSS Sections).
- User-specified design parameters including sideway stiffeners, welding, net section factor, drift and deflection.
- Code check, member selection consisting of analysis/design cycles.
- Calculation of Effective Length Factors (K Factors) for Steel Design.
- Powerful grouping command to design disjointed members as a physical member.
- AISC/ANSI N90-93 Code Check for Stainless Steel material.
- British cold-formed steel code (BS5950 Part V) with associated database of shapes.
- Weld design per AISC - ASD Code.
- Apply block or contour fireproofing on steel members.
- Composite beam design per AISC ASD and LRFD (effective width automatically calculated).
- Torsion design for open sections.
- Design for tapered I-sections and tapered tubes (hexagonal, octagonal, etc.).
- Moment and shear connection designs for column flange to beam joints including superior graphical and result presentations.
- ASCE 10-97 Transmission tower code.
- Design of open web joints, joint girders and castellated beams.
- AISC Design Guide 11 – Check for Floor Vibrations due to Rhythmic Activities.
STAAD.Pro 2006

### Analyze, Design and Connect Buildings, Towers, Bridges and Foundations

- **Master/slave capabilities to create rigid or flexible diagrams**
- **Beam warping end restraint added as an option for torsional stiffness**
- **Buckling analysis**
- **Plate elements consider inclined supports**
- **Full and partial moment releases (excellent for steel frame structures) releases defined by springs are hard to determine)**
- **Fixed, pinned and spring supports with releases. Also inclined Supports for curved structures**
- **Automatic spring support generator (with compression-only attribute) for mat foundations**
- **Active/inactive members for load-dependent structures**

### Dynamic Analysis

- **Response Spectrum**
- **Time History Analysis with blast loading and multiple arrival times for multiple vibrational sources**
- **Extraction of Frequency and Mode Shapes**
- **UBC 94, 97 and IBC 2000, 2003 supported**
- **Calculation of maximum base shear for time history loading**
- **Scale factors for ground acceleration for time history loading**
- **Harmonic Load Generator**
- **Combination of Dynamic Forces with Static Loading for subsequent Design**
- **Missing mass for response spectrum and time history load cases**
- **Logarithmic interpolation for spectra**
- **Modal damping for time history and spectrum for individual modes**
- **Composite damping to specify damping ratio for each member/element**
- **Plot base shear and support reaction versus time for time history analysis**
- **Base shear calculation includes direction factors**
- **Generate floor spectra from time history**

### Load Types & Load Generation

- **ASCE 7-02 Wind and Snow (Unbalanced/Drifting) loading**
- **Loading for Joints, Members/Elements including Concentrated, Uniform, Linear, Trapezoidal, Temperature, Strain, Support Displacement, Hydrostatic, Prestress and Fixed-end Loads**
- **Global, Local and Projected Directions**
- **Uniform or varying Element Pressure Loading on entire or selected portion of elements**
- **Floor/Area Load Converts load-per-area to member loads based on one-way or Uniform or varying Element Pressure Loading on entire or selected portion of elements**
- **Floor/Area Load Convert load-per-area to member loads based on one-way or Uniform or varying Element Pressure Loading on entire or selected portion of elements**
- **Floor load generator automatically updates the pressure distribution if the floor group changes**
- **Reduce live loads as per IBC**
- **Automatic Moving Load Generator per AASHTO, BS5400, IS codes or user-defined loading**
- **IBC 2000, 2003/UBC 94/97/AlSi/ST1893/Revised Seismic Load Generation**
- **Automatic Wind Load Generation on user-defined panels, as per ASCE7 on closed or open lattice structures**
- **Tributary/Influence areas drawn for all floor and wind loads**
- **Factored Load Combinations including algebraic, absolute and SRSS combination schemes**
- **Imposed displacements in any number of load cases, any number of DOF, any type of element, and with inclined supports.**

### Results Verification

- **Textual and graphical results verification and display**
- **Custom-defined tool tips for displaying pre- and post-processing data for any entity with mouse roll over**
- **Export saved pictures into any raster format (BMP, JPEG, TIFF, etc.) and in any size**
- **Super query box to change any beam/element attribute on the fly (i.e. double click on a support or load diagram).**
- **Deflected and Mode Shapes based on Joint/Section Displacement for user-specified loading or mode shape number**
- **Bending Moment and Shear Force diagrams of individual members as well as the entire structure (through single double-click)**
- **User-controlled Scale factors for Deflected or mode shapes**
- **Force/Moment Envelope plots as max/min for all loads**
- **Stress contour plots on deflected shape as filled or line contours**
- **Code Performance Plots for Steel Design (capacity ratio)**
- **Powerful on-line Query for analysis/design results**
- **On-screen Report generation with Sort/Search**
- **Animation of Deflected/Mode shapes, Stress Contours. Save to an external AVI file**
- **VRML (Virtual Reality Modeling Language) export feature enables “Walk-through” Model verification using any standard Web Browser**
- **3D beam stress diagram to determine stresses along any point**
- **Cutting lines through plates to determine the stresses and moments along the line - excellent for custom design scenarios**
- **Step-by-step calculations to verify steel and concrete design**

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“STAAAD’s easy to use interface and powerful analysis and design capability made the design quick and efficient. STAAAD is the only software for the job.”

Aaron Bopp, Design Engineer
Sutton-Kennerly & Associates, Greensboro, NC
Projects are completed on time. With offices located throughout the world, and timely technical support can play an important role in making sure your customer satisfaction is our number one priority. We understand that accurate technical support can make a difference in the questions that you may have or problems that you may encounter using any of the REI products. We offer a comprehensive Maintenance & Service program (Bentley SELECT) to ensure you receive maximum benefits from your investment in REI products.

Integration: STAAD. Pro with STAAD. etc

- Significant powerful, integrated component analysis and design tools.
- Use STAAD etc. within STAAD. Pro to analyze and design the footings and create a footing layout (group footing as well).
- Use STAAD etc. within STAAD. Pro to analyze and design the moment connections between the columns and beams.
- Use STAAD etc. within STAAD. Pro to analyze and design base plates.
- Full calculation sheets provided for result verification.

Other Interoperability

- Integration with Section wizard for section property calculation of any shape.
- Use STAAD. foundation to design mats, pile caps and slab on grade from your STAAD model.
- Open and customizable international steel library databases.
- Open STAAD API to link STAAD data into any 3rd party or in-house applications like Excel, AutoCAD, MicroStation, etc. using any language like VBA, C++, C#, FORTRAN (fully COM compliant).
- COS2 interface to take data to steel detailing or other analysis packages.
- Built-in VBA editor to create macros to customize the STAAD. Pro GUI. Add customized dialog boxes, menus or macros to run specific analysis or design macros within STAAD. Pro
- Integration with RAM Concept for RC or Post-tensioned slab design
- Integration with third party products as MathCAD, LARSA, DESCON, TEKLA Structures, Structural Desktop, Frameworks Plus

Maintenance & Service (Bentley SELECT)

To ensure you receive maximum benefits from your investment in REI products, we offer a comprehensive Maintenance & Service program (Bentley SELECT). This program is designed to provide you with an information pipeline to answer the questions that you may have or problems that you may encounter using any of the REI products so that you always have immediate access to the latest releases and upgrades.

Profit from our Maintenance Program (SELECT) with:
- Technical support. Customer satisfaction is our number one priority. We understand that accurate and timely technical support can play an important role in making sure your projects are completed on time. With offices located throughout the world, technical support is available on demand. Technical support is provided worldwide through Bentley's support centers in the United States, Canada, United Kingdom, France, Germany, Scandinavia, Singapore, Japan, Thailand, China, Mexico and India. In addition, Bentley maintains a World Wide Web site and e-mail-based technical support.
- Unlimited toll-free access to domestic technical support
- e-Support: Online technical support 24 hours per day
- Free real-time online tutorials to learn new features (www.reinworld.com/livedemo)
- Dynamic knowledge-base system for FAQs and example problems (changes every day with input from REI support engineers around the world).

Product Updates & Enhancements

REI's development team is committed to keeping REI products current and using new and emerging technologies to ensure the availability of product enhancements and problem fixes. All REI products will evolve through at least one major release per year as well as a number of update releases. Participation in our Maintenance & Service (SELECT) program provides you with:
- Automatic Software updates and enhancements mailed to you upon request
- Downloadable updates and patches (archived updates also available)
- Automatic Bug Notification System to inform users of new patches, builds, or updates every time they run STAAD

Other SELECT Benefits

- Annual license exchange to swap out products
- Discount on additional licenses
- Pooled licensing that can be accessed across a network
- Access to use software or design codes on subscription basis

STAAD Training Programs at the Bentley Institute

Training is an invaluable tool towards using REI software more productively. The Bentley Institute develops and delivers accredited, professional training courses that are created to enable users to stay competitive. The Bentley Institute offers both the STAAD. Pro Standard Training and STAAD. Pro Advanced Training as Classroom Learning or Distance Learning courses.

- STAAD. Pro Standard Training is a 2-day training designed for users who have less than 6 months of combined experience in STAAD. Emphasis is on Pre-Processing, Analysis, and Post-Processing.
- STAAD. Pro Advanced Training is a 2-day training program is based on advanced topics such as Finite Element Analysis, Dynamics, and Buckling.
- All training is conducted by STAAD. Pro Certified Trainers (SCT) or Bentley/REI employees
-Coming soon - Several short Distance Learning Courses on various subjects for REI software tools
- A schedule of training sessions across North America at Bentley Training Facilities or REI's new training facility in California, go to http://www.bentley.com/en-US/Training/. Account-specific training programs can also be held at your site and customized based on your requirements.

Classroom Learning

Led by experienced Bentley/REI instructors, classroom learning is offered through scheduled courses at Bentley training facilities or as account-specific training in your office or nearby training facility convenient to your work location.

Distance Learning

Live, instructor-led distance learning is taught by experienced Bentley/REI instructors via the Internet. Distance learning is available through scheduled courses or on account-specific courses tailored to your workflow.

Universal Structural License (USL)

If you are a medium to large engineering company looking to standardize on the STAAD and RAM suite of products at a fixed yearly cost, thereby, eliminating the hassle and cost of procuring additional licenses, ask us about the new USL license that allows you to access to most REI and RAM products across your enterprise.
Model Generation/Results Verification

- Physical Member Interface allowing creation of physical members from a series of analytical members
- Parametric mesh model saved to the STD file for persistency of all meshes
- Enhancement of the SET Z UP command
- Specification of Member Orientation Using Reference Vector
- Customizable Color to Display Unity Check / Utilization Ratio
- Single File Archive to save All STAAD Input / Output Files

Load Generation

- Automatic generation of load envelopes saved as part of the STAAD file
- Automatically create response spectra from IBC graphs by providing a zip code

Analysis

- Pushover analysis as per FEMA 356/440 codes with full visualization of formation of plastic hinges (optional)
- Steady state analysis along with harmonic responses (optional)

Design

- Auto Calculation of Effective Length Factors of Members as per AISC
- Enhancement to Steel Designer BS 5950 Calculation Sheets
- Generation of Transfer Force Report for Connection Design
- Added Slab Design to BS 8110 in RC Designer mode
- Improved BAEL Beam Design Enhancement in RC Designer mode
- Improved DIN 1045-1 Beam and Column Design in RC Designer mode
- LOAD GENERATION command recognized by the RC Designer

Interoperability and Open Architecture

- Integration with RAM Concept for full RC and Post-tensioned slab design of STAAD floors

Customer Support (Bentley SELECT)

With Bentley’s acquisition of Research Engineers International (REI), you are now eligible to become part of the industry’s most comprehensive subscription program, Bentley SELECT.

Similar to REI’s Maintenance Program, SELECT provides your team with expert technical support and frequent product updates. In addition to these fundamentals, SELECT also includes innovative licensing and learning benefits that deliver comprehensive investment protection for your team’s productivity, for your Bentley engineering software, and for the information created.

Bentley SELECT improves upon your existing support and customer care program by delivering several additional benefits, nine in total. Featured offerings for REI users include:

- An Annual License Exchange opportunity that enables you to rebalance your technology portfolio for optimum productivity in the year ahead.
- Pooled Licensing to maximize license utilization across your organization and minimize the burden of desktop license administration.
- BE Conference registration, a once-a-year learning opportunity for all users of Bentley products and their managers to sharpen skills and expand knowledge.

These outstanding offerings are delivered to compliment the unlimited technical support, continuous product development and updates and substantial volume discounts, which you already enjoy as a REI subscriber. For a complete listing of all nine SELECT offerings, visit our SELECT Web site www.bentley.com/SELECT, and see why your SELECT subscription truly provides comprehensive investment protection for your REI software.

At Bentley, we are excited to extend these exclusive SELECT benefits to our REI users. To learn how to upgrade your current maintenance program to Bentley SELECT, call your regional engineer or inside sales representative.

USER’S FEEDBACK

“The technical assistance team has been very useful to our projects. Not only do they provide advice related to the use of the software, they also make suggestions related to the model, which is an extra value to the company name. When we have a problem, they request the STAAD input file and take their time to find out what is wrong . I am confident to say that at least three projects would not have been successful from the structural point of view if we had not received the assistance of the Technical support team”.

Omar Villegas-Jiménez
Civil / Structural Lead
UHDE Jacobs

“We’ve been using STAAD for over 4 years. We use it mainly because of its reliability and ease of use. Most engineers are very familiar with it. STAAD.Pro is capable of doing everything we need and its new interoperability features allow users to write Excel macros to tap into STAAD which allow us to meet our individual needs.”

Steven Vicha, P.E.
Jacobs Engineering Group, Inc.

“We have been using STAAD in our office since 1990. It has become one of our essential design tools for all types of structures. ”

David E. Ernest, P.E.
Senior Civil Engineer
Metso Minerals Industries Inc.

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