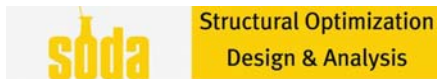


## Structural Engineering Software

### Acronym Software Incorporated

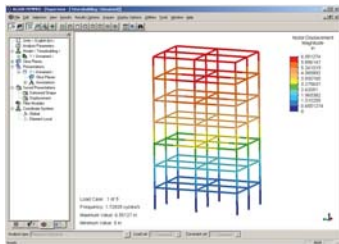
22 King Street South, Suite 302  
Waterloo, Ontario, Canada N2J 1N8  
Ph: 519.885.2454  
Fax: 519.885.1407  
soda@acronym.ca  
www.acronym.ca



SODA performs least-weight design of standard steel sections. It operates under Windows™ 9x, ME, NT, or 2000, provides graphical views of structure and loads, deflected shape, shear and moment diagrams, and controlling design-code clauses. SODA allows for the design, verification and analysis of a range of steel structures (2D & 3D frameworks, up to 2000 members, 1500 nodes, 100 load cases, multiple support and connection conditions, first-order and second-order behavior, etc.). SODA permits design and verification under five different American and Canadian steel design codes. SODA 4 is to be released in Spring 2004.

### ALGOR, Inc.

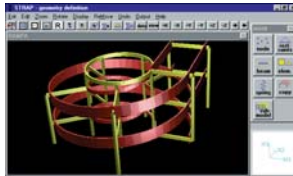
150 Beta Drive  
Pittsburgh, PA, 15238  
Ph: 412.967.2700  
Fax: 412.967.2781  
info@algor.com  
www.ALGOR.com, www.FEAinCAD.com,  
www.PipePak.com,  
www.eTechLearning.com



ALGOR software includes design, analysis and simulation tools that enable engineers to test and predict real-world behavior of new and existing products. Simulation capabilities includes static stress and Mechanical Event Simulation (MES) with linear and nonlinear material models, linear dynamics, steady-state and transient heat transfer, steady and unsteady fluid flow, electrostatics, full multi-physics and piping. MES combines large-scale motion and stress analysis with consideration of full inertial effects to enable engineers to see motion and its results, such as impact, buckling and permanent deformation. These analysis capabilities are all available within a complete and easy-to-use interface, FEMPRO, that supports a wide range of CAD solid modelers and includes finite element meshing and model-building tools.

### Atir Engineering Software

3314 West Rance Terrace  
Chicago, IL 60712-3831  
Ph: 800.644.6441 or 847.677.1945  
Fax: 847.677.3456  
strap@atir.com  
www.atir.com



STRAP Version 11.0 is a 3D, static and dynamic, frame and finite-element analysis and design program. STRAP's pre- and post-analysis options speed and simplify data input and results interpretation. Post-processors are available for rolled and light-gauge steel and concrete, including an option to produce a 'general arrangement drawing' for models; integration to the BEAMD system that details reinforced concrete beams and produces a beam schedule; and addition of the ASCE standard (ASCE7-98) for earthquake design. STRAP for Bridges designs bridge structures for moving loads. The program creates 3D influence lines for any point and calculates the critical effect of vehicle loads.

### Bestech Systems LLC

Landmark Buildings,  
230 Park Ave., Suite 864  
New York, NY 10169  
Ph: 212.295.2192  
Fax: 212.295.2121  
bridges@LRFDSOFTWARE.COM  
www.LRFDSOFTWARE.COM

SAM is bridge design software that integrates analysis with code checking. Use line girders for simple decks, or analyze curved and skew decks with grillages or finite elements. All LFRD loadings are generated automatically. Includes code-check sections, prestressed girders and steel composite girders. Bestech offers training for effective software use, and bridge-modeling techniques.

### Cascade Consulting Associates, Inc.

P.O. Box 1617  
Corvallis, OR 97339  
Ph: 800.279.1353  
Fax: 800.279.1354  
strucalc@strucalc.com  
www.strucalc.com



StruCalc 6.0 is a solution for beams, column, joist, and rafter design. The material database includes solid sawn lumber, steel, glulams, I-joists, manufactured lumber, flitch beams and tube steel. Contains 10 easy-to-use modules, including the new Studwall design and multi-span hip beams as well as square, rectangular or continuous footings. Includes major building codes, including the 2003 IBC and 2001 NDS. Only \$395. Visit the web site and download a free evaluation copy.

### C-Concepts, Inc.

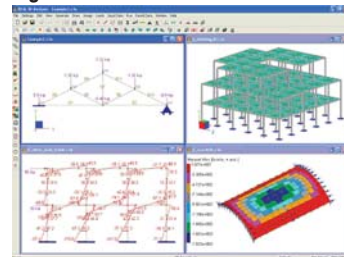
12612 W. Mill Road  
Menomonee Falls, WI 53051  
Ph: 262.252.3173  
Fax: 262.252.3134  
danhorn@c-conceptsin.com  
www.c-conceptsin.com



ERITower analyzes and designs 3-sided guyed and self-supporting towers and round and tapered monopoles. The program designs or checks members using EIA/TIA standards from Rev A to G. Linear and non-linear analyses can determine displacements and forces within the structure. Wind pressures, forces, and ice loads are calculated automatically. Extensive graphics plots include material take-off, plot plan, shear-moment, leg-compression, displacement, twist, feed-line, guy-anchor and stress plots. Reports are generated in Microsoft Word RTF format. Libraries of feedlines, dishes, appurtenances and tower sections can be referenced from within the program. Both imperial and metric units are supported. A complete user's manual and HTML help is included.

### Computations & Graphics, Inc.

6500 S. Dayton Street, Suite B305  
Centennial, CO 80111  
Ph: 303.706.0048  
Fax: 303.706.0048  
info@cg-inc.com  
www.cg-inc.com



Real3D-Analysis is a comprehensive 32-bit Windows structural analysis program. Elements include beam/truss, thick and thin plate/shell and solid brick. Easy input and output through point-and-click, spreadsheet, automatic model generation, intuitive moment-shear diagram, and stress contour. Features include 128-bit floating-point solver (linear or p-delta), realistic graphics based on OpenGL™, HTML report and multiple-document interface.

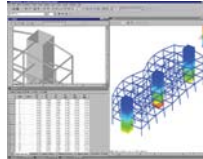
RcSections is a 32-bit Windows analysis and design program for reinforced concrete sections according to ACI-99 and ACI-02. Sections can be rectangular, circular, Tee, I, or inverted L, and generic sections with openings. Features include automatic section generations, accurate and fast solver, result data in a spreadsheet, 2D P-M and  $M_x$ - $M_y$  interaction diagrams and 3D P- $M_x$ - $M_y$  capacity surface.

**Computers and Structures, Inc.**  
1995 University Avenue, Suite 540  
Berkeley, CA 94704  
Ph: 510.845.2177  
Fax: 510.845.4096  
info@csiberkeley.com  
www.csiberkeley.com



ETABS building analysis and design software is built around a physical object-based GUI, powered by targeted algorithms for analysis and design, with interfaces for drafting and manufacturing. The integrated model includes moment-resisting frames, braced frames, staggered-truss systems, RBS frames or side plates, rigid and flexible floors, sloped roofs, ramps, parking structures, mezzanine floors, multiple towers and stepped diaphragm systems with complex steel, concrete or composite floor-framing systems. Solutions to complex problems, like panel zone deformations, diaphragm shear stresses, and construction sequence loading are at your fingertips.

**Daystar Software, Inc.**  
8303 NW Hillside  
Kansas City, MO 64152  
Ph: 816.741.4310  
Fax: 816.741.4607  
info@daystarsoftware.com  
www.daystarsoftware.com



Multiframe is three-dimensional software for linear or non-linear static or dynamic analysis and design of framed structures. Multiframe features interactive graphics and a graphical approach to structural modeling. Direct data and graphics exchange with Excel, Visio, MathCAD, AutoCAD and others integrates Multiframe with existing design tools. CAD tools such as automatic generation, duplication and rotation of structural elements simplify the process of constructing a frame model. The program includes clipping, masking and transparency functions so the user can slice through the structure to view and highlight areas of interest. Searching and sorting functions also make it easy to find key design values and produce required reports.

**Devco Software, Inc.**  
117 W. Main, Suite B  
Enterprise, OR 97828  
Ph: 541.426.5713  
Fax: 541.426.5715  
rob@devcosoftware.com  
www.devcosoftware.com



LGBEAMER is for sizing cold-formed steel cees, channels and zeos. Models with up to three spans and cantilevers both ends can have uniform, concentrated, sloped and partial-span flexural loads, and axial loads that vary from span to span. User-defined flexural and axial bracing, bearing lengths, and duration of load modifiers are input from one convenient modeling screen. Section input is from toolbar dropdown selections or generated from a custom geometry module. Price is \$395.

## productcasestudy

### Greenside Place Link Bridge

Greenside Place Link Bridge is an S-shaped, helical steel-lattice structure that spans 50 m across Leith Street in Edinburgh, Scotland. Buro Happold Consulting Engineers used **LUSAS Bridge** to carry out a static analysis, a nonlinear buckling analysis, and a natural frequency check of the structure for client Coal Pension Properties (c/o LaSalle Investment Management).

The bridge is a free-standing structure of curved, 139.7 mm x 10 mm round HSS spiraling around six longitudinal 193.7 mm x 16 mm round HSS located in the top and bottom of the bridge cross-section. The 5 m-wide x 4 m-high helix is supported by splayed legs of 457 mm x 25 mm round HSS springing from concrete plinths. Aluminum planking is used for the decking. Glass panels frame the sides of the walkway and provide a roof for pedestrian protection.

The geometry for the bridge was imported from an existing CAD model using a DXF file. In Lusas, named groups assisted with the assignment of attributes such as geometric and material properties. This function allows common parts of a model to be viewed or selected in isolation, and provides greater control over results processing. Thick beam elements were assigned to the line features representing the main steel members. Joint elements modeled the pinned connections between the supports and the helical HSS. Fully fixed supports were used at connection with the concrete base. Engineers assessed long-term loads like differential settlement and short-term loads from pedestrians, wind, and temperature. They also considered accidental loads from vehicle impact with the concrete piers.

A static analysis of the proposed structure showed that the bottom members of the helix immediately above the inclined supports were overstressed and modification or stiffening would be required for the final structure. "The helical structure, which provides shear transfer between the top and bottom chords, globally was very stiff," said Iva Trifkovich, structural engineer at Buro Happold. "The only problem we had was locally around the supports. We considered different strengthening strategies, including a steel plated stiffening option, but this didn't solve the problem." Finally, 193.7 mm x 20 mm round HSS diaphragm rings were used at each support location. Subsequent analysis

showed that the insertion of these rings lowered the stresses in the helix local to the supports to an acceptable level.

A nonlinear buckling analysis was carried out to determine when the structure would start to behave nonlinearly. An initial imperfection was applied to the deformed buckling shape and the structure was loaded incrementally. It was shown that the structure remains linear within the range of the design loading.

While dynamic response to pedestrian loading can be a problem for some footbridges, a straightforward natural frequency analysis showed that the first horizontal mode shape of 2.55 Hz and the first vertical mode shape of 6.32 Hz were both above the critical frequency range for pedestrian comfort according to the UK BD37/01 design code. Gain frequencies also were outside of the critical walking range. "We compared gain frequencies against pacing and jumping frequencies for both vertical and horizontal movement of the bridge and got satisfactory results, showing that pedestrians will not feel any discomfort when crossing the bridge," Trifkovich said. "Because of the complex nature of the structure and its S-shaped form, it would not have been possible for us to be sure of the exact stresses and forces in the helical members without the use of LUSAS."

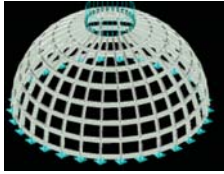


Image courtesy of Broadway Malvan Architects

## Structural Engineering Software

### Digital Canal Corporation

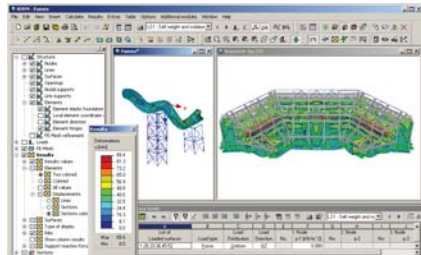
2728 Asbury Road  
Dubuque, IA 52001  
Ph: 800.449.5033  
Fax: 563.690.2003  
info@digitalcanal.com  
www.digitalcanal.com



Digital Canal's Structural Expert Series (SES) provides software for analysis, design and detailing. The frame analysis and design product VersaFrame runs stand-alone or integrated in AutoCAD. This program uses CAD to model, analyze, and design structures. Additional products include: steel design, concrete design, footing design, timber design, wind analysis, and retaining and masonry wall design. VIP clients receive free upgrades on their products. Free Downloads are available on the web site or by request.

### Dlupal Engineering Software

Am Zellweg 2  
Tiefenbach, D-93464, Germany  
Ph: +49.9673.9203.23  
Fax: +49.9673.1770  
info@dlupal.com  
www.dlupal.com



Dlupal offers a 3D finite element program for structural engineers. RFEM's graphic user interface allows visual modeling of complex structures. Includes beams, plates and shells and libraries of materials and international sections. Stress, buckling and dynamic analysis are available in additional modules. RSTAB is made for frameworks. Design modules are available for steel, timber and concrete. New are steel connection modules. Designed connections can be displayed in rendered views. RFEM and RSTAB also can be controlled externally by a programmable COM interface like Visual Basic. RSTAB links to ProSteel3D, XSTEEL and other CAD software. Analysis results are presented in a customizable report with images. More information and demo are available for download from the web site.

### Engineering Advice, Inc.

7491 N. Federal Highway, C-5, #289  
Boca Raton, FL 33487-1658  
Ph: 561.241.3039  
Fax: 561.988.9447  
info@engineeringadvice.com  
www.engineeringadvice.com

Engineering Advice's web-enabled LRFD Steel Design program was developed by engineers based on the 3rd Edition of the AISC *Specification and Manual of Steel Construction*. The software is a

learning aid to students and engineers. It covers analysis and design of tension and compression members, flexural members, floor and roof systems, members subject to compression and flexure, and bolted and welded connections. Connections include simple shear, eccentric shear and tension, welded seated beam connections, welded bracket plate connections, bolted bracket plate connections, column base plate, flexible and rigid moment connections.

### Georgia Tech - CASE Center

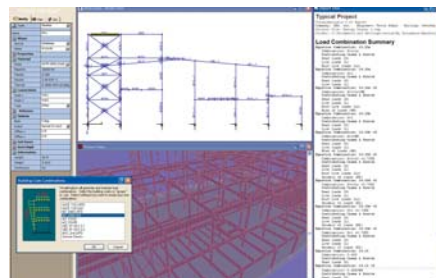
790 Atlantic Drive  
Atlanta, GA 30332-0355  
Ph: 404.894.2260  
Fax 404.894.8014  
casec@ce.gatech.edu  
www.gtstrudl.gatech.edu



GTSTRUDL is database-driven structural analysis and design software with features for linear, non-linear, static and dynamic frame and finite-element analysis, steel and concrete frame design, and offshore jacket analysis and design. Graphic creation of frame and finite element models; Model Wizard; pre-defined and user-defined tables of steel shapes; data sheets to view, edit and sort information; graphic results display; steel design for US and international design codes; Steel Design Wizard; concrete design for US/British Codes; linear dynamic analysis; elastic buckling analysis; nonlinear static and dynamic analysis; and push-over analysis. GT STRUDL® is a registered service mark of the Georgia Tech Research Corporation, Atlanta.

### Integrated Engineering Software, Inc.

519 E. Babcock St.  
Bozeman, MT 59715-4713  
Ph: 800.707.0816  
Fax: 406.586.8988  
info@iesweb.com  
www.iesweb.com



The VisualAnalysis 5.1 Package solves simple beam problems and completes time-history analysis of multi-story buildings. Sketch models using CAD-like features or generate them with wizards, spreadsheets, copy and paste, and more. Import STAAD or DXF files. Design in any material, code-check for steel, wood, concrete, and cold-formed steel. 5.1 is updated to the latest AISC specifications, supplements, and errata, including HSS and Single Angles. St. Venant torsion is checked. Switch between ASD and LRFD. Create custom reports. A single license is \$995-\$1995. Download free demo from the web site.

### Integrated Structural Software

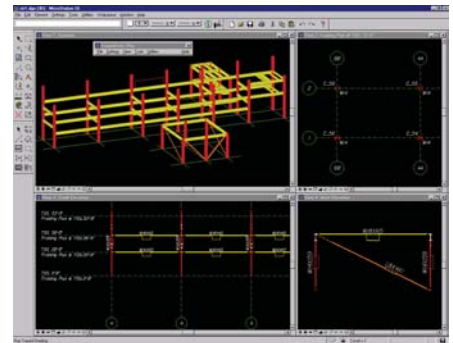
155 Dorchester Way  
San Francisco, CA 94127  
Ph: 415.682.2205  
Fax: 415.682.8490  
info@robot-structures.com  
www.robot-structures.com



ROBOT Millennium is finite-element structural engineering software for analysis and design of buildings, bridges, industrial facilities, and other structures. The software performs static/dynamic analysis of 2D/3D projects with beams, plates, shells and solids elements. It features flexible modeling, integrated steel and concrete design, automatic meshing of plates and shells, ability to use volumetric finite elements, advanced analysis and comprehensive output reports. Analysis includes harmonic, seismic and pushover, linear/non-linear time-history, non-linear with true cables, P-Delta and large displacements, beam-material non-linearity and plastic hinges. ROBOT can compare alternate designs in steel and reinforced concrete following updated American and International codes. ROBOT is also interfaced with CAD/CAE software using DWG and other formats.

### Intergraph Process, Power & Offshore

300 Intergraph Way  
Madison, AL 35758  
Ph: 800.260.0246  
Fax: 256.730.3028  
ppo@ingr.com  
ppo.intergraph.com/structural

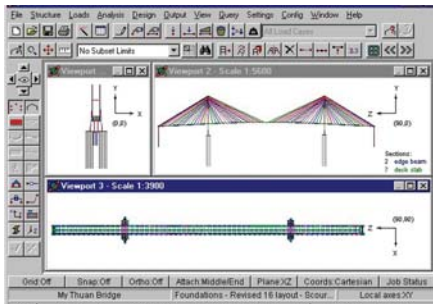


FrameWorks Plus 7.2 (\$4200) produces intelligent models and fabrication and detailing data packages. Use 3D model data for physical members, material takeoffs, and project reviews. Supports 3D modeling and drawing, fabrication and detailing of steel beams, columns, braces, cutouts, sleeves, concrete slabs and walls, and offshore marine structures. The software is SDNF and CIMsteel compliant, runs on Microsoft Windows NT, and provides certified interfaces to GT-STRUDL, LARSA, STAAD-Pro, SAP2000, RAM Steel, Xsteel, SDS/2, StruCAD, CDS. Features AISC and BCSA tables and standard section data from 15 countries.



## Structural Engineering Software

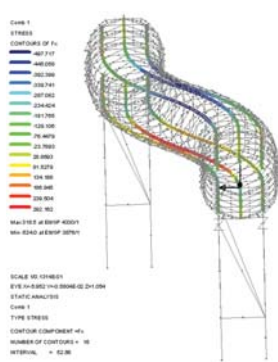
**King & Associates LLC**  
 111 Piping Rock Dr.  
 Houma, LA 70363  
 Ph: 800.739.5464  
 Fax: 985.872.3145  
 usa@spacegass.com  
 www.spacegass.com



SPACE GASS is a structural analysis and design program for 2D and 3D frames, trusses, grillages and beams. It comes with features that make it suitable for any job from small beams, trusses and portal frames to large high-rise buildings, towers, cranes and bridges. Items such as graphical input, polar coordinates, elastic supports, pin-ended members, tension-only members, rigid member offsets, and non-linear analysis are all standard features.

### LUSAS

**Forge House, 66 High Street**  
**Kingston upon Thames, Surrey, KT1 1HN,**  
**United Kingdom**  
 Ph: +44.20.8541.1999  
 Fax: +44.20.8549.9229  
 info@lusas.com  
 www.lusas.com



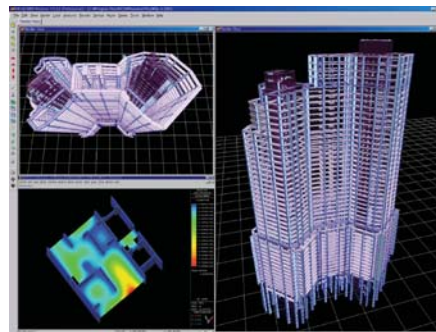
LUSAS finite element analysis software products solve linear and nonlinear stress, dynamics, composite and thermal-engineering analysis problems. LUSAS Civil & Structural provides comprehensive functions for linear, nonlinear, seismic, blast, buckling, impact analysis and fire. Use it for simple slabs, building frames, masts, towers and tanks, and heavy towers, dams, docks, and tunnels. For bridge engineers, LUSAS Bridge can be used for fundamental frequency, seismic, dynamic, large deflection, and fatigue analysis. Staged construction, modeling of creep, prestress and post-tensioning and curved girder analysis is supported. A vehicle-load optimization function simplifies the assessment of worst-case loading patterns.

**MDX Software**  
 1412 Ridgmont Ct  
 Columbia, MO 65203  
 Ph: 573.446.3221  
 Fax: 573.446.3278  
 info@mdxsoftware.com  
 www.mdxsoftware.com

Curved and straight steel bridge design and rating software for compliance with AASHTO, ASD, LFD, and LRFD.

### MIDASoft Inc.

**1770 Barnes Blvd SW – Suite 200**  
**Tumwater, WA 98512**  
 Ph: 360.753.5540  
 Fax: 360.753.5542  
 midasoft@MidasUser.com  
 www.MidasUser.com



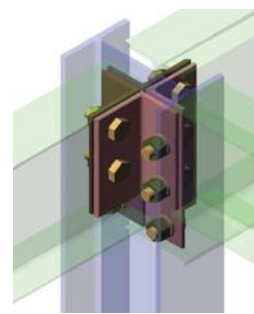
MIDAS offers solutions for analysis and design of civil/bridge and building structures. Generate presentation materials directly from structural models. MIDAS/Civil (Civil-Bridge structures) offers: moving load analysis & steel and reinforced concrete design per AASHTO LRFD; segmental post-tensioned bridges with time-dependent properties; construction stage analysis; skewed slab and framed bridge culvert wizards; curved bridges; suspension and cable-stayed bridge analyses; static, dynamic, linear and nonlinear analyses; heat of hydration analysis; auto mesh generation; and more.

MIDAS/Gen (Building structures) offers ACI, AISC, AISI, CSA, Euro, BS & SSRC design; lateral design load generation; building construction sequence analysis with creep, shrinkage and compressive strength; P-Delta and large displacement cable analysis; static, dynamic, linear and nonlinear analyses; base isolators and dampers; pushover analysis; staged post-tensioning; and more.

### NYacad

**1776 E -13St. #4A**  
**Brooklyn, NY 11229**  
 Ph: 646.369.9006  
 Fax: 425.663.5650  
 alex@nyacad.com  
 www.nyacad.com

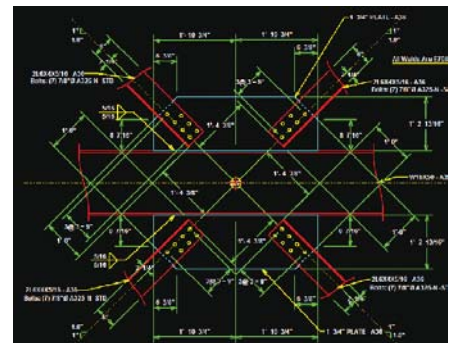
SolidStructural-05 3D Steel Modeling and Auto Drafting Software is designed for small and middle-sized engineering firms. It features 3D design of structures including standard connections: clip angles, shear plates, column plates, wall bearing beam ends etc. Structural layouts include: grids, plans, el-



evaluations, typical sections and foundation plans. A structural shapes' database includes a structural design calculator. This software (\$1200.00/license) requires basic AutoCAD experience. Structural drawings are produced in Auto regime (minutes per drawing). The program is flexible for design changes.

### Omnitech Associates

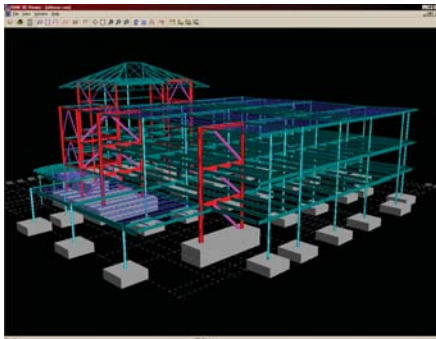
**P.O. Box 20792**  
**Oakland, CA 94620**  
 Ph: 510.658.8328  
 Fax: 510.595.0373  
 Omnitech@desconplus.com  
 www.desconplus.com



Omnitech Associates offers DesconWin and Descon Brace software for designing connections of steel structures. DesconWin designs shear and moment connections including beam-to-column flange, beam-to-column web, and beam-to-girder connections as well as beam and column splices. Beam connections to HSS columns have been included in version 4.0 of DesconWin. Descon Brace designs vertical bracing connections including diagonal and chevron bracing. The bracing members can be selected from pull-down lists of W, WT, L, 2L, HSS, C, and 2C sections. Version 4.0 includes gusset and beam connections to the column, and HSS brace to gusset connections. Both programs generate detailed calculation reports, drawings, and DXF files. ASD and LRFD versions are available.

## Structural Engineering Software

**RAM International**  
 5225 Avenida Encinas  
 Carlsbad, CA 92008  
 Ph: 800.726.7789  
 Fax: 760.431.5214  
 sales@ramint.com  
 www.ramint.com

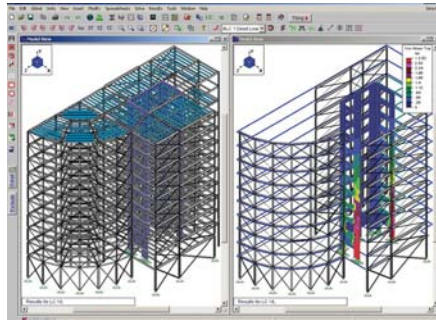


RAM International provides engineering software support and training to make the structural engineering office more efficient and productive. The RAM Structural System is a building analysis, design and drafting system. RAM Advanse is a general-purpose 2D or 3D FEA analysis and design package, suitable for almost any type of structure. RAM Perform is an advanced tool for nonlinear performance-based design and collapse analysis. RAM Concept designs elevated floor slabs and mat foundations, either RC or PT. RAM Connection designs steel connections for wide-flange or HSS—either stand-alone or integrated with RAM Structural System or RAM Advanse. RAM CADstudio works inside AutoCAD to integrate and synchronize design and drafting departments through a design cycle. RAM is also convenient for use with EDI, and has electronic links to major structural steel detailing packages.

**Research Engineers International**  
 22700 Savi Ranch Pkwy.  
 Yorba Linda, CA 92887-4608  
 Ph: 714.974.2500  
 Fax: 714.974.4771  
 info@ca.reiusa.com  
 www.reiworld.com

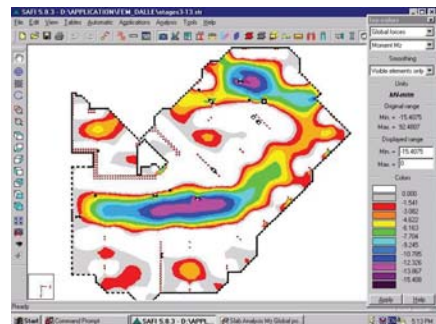
Research Engineers introduces STAAD.Pro 2003, structural engineering software for 3D model generation, analysis and multi-material design. It has GUI, visualization tools, analysis and design facilities, and integration to other modeling and design software products. Compatible with Windows 2000, Windows ME and optimized for Windows XP.

**RISA Technologies**  
 26632 Towne Centre Dr. Suite 210  
 Foothill Ranch, CA 92610  
 Ph: 800.332.RISA  
 Fax: 949.951.5848  
 info@risatech.com  
 www.risatech.com



RISAFloor is the only floor software that integrates with a general analysis package, RISA-3D. Design gravity and lateral systems on the same model! RISAFloor calculates loads, designs beams and columns, and produces drawings. Lateral systems, including gravity and lateral loads, can be created automatically. Parent/child floors, additive area loads, two-way deck, tapered loads, continuous beams, relative and absolute deflections, steel, concrete, composite, wood, cold-formed design and manufactured product selection, and AISC *Design Guide 11* vibrations. RISA-3D is a general purpose analysis and design package for industrial structures, buildings, bridges, towers, tanks, etc. Physical members, steel, concrete, wood, and cold-formed design, AISC *Design Guide 9* torsion, 1- or 2-way area loads, response spectra analysis (SRSS, CQC, Gupta), rigid diaphragms, and imports/exports SDNF and DXF files. RISASection, RISABase and RISAFoot provide biaxial analysis of custom sections, footings or base plates.

**SAFI Quality Software Inc.**  
 3393 ch. Sainte Foy  
 Sainte Foy, QC Canada G1X 1S7  
 Ph: 418.654.9454  
 Fax: 418.653.9475  
 info@safi.com  
 www.safi.com



SAFI is an integrated design program for steel, composite, concrete and aluminum structures. SAFI 3D engine performs static analysis, P-Delta, non-lin-

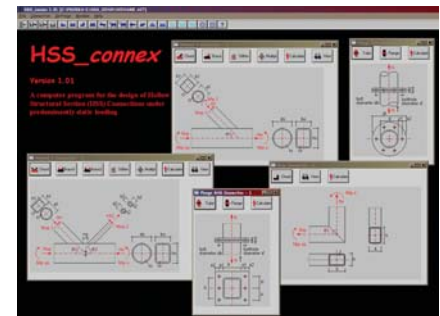
ear, modal, buckling and finite elements. Seismic analysis is available, including spectral seismic, time-history seismic and time-history dynamic analysis. The IBC and NBC seismic loads are automated. SAFI Steel designs according to American, Canadian and European standards. The Steel Calculator allows you to verify, design and optimize simple or continuous steel beams and columns. SAFI also offers SAFI Concrete, SAFI Pre-tension, SAFI Tower, SAFI Tubular, SAFI Bridge, SAFI Steel and Wood bridges, SAFI Highway Signs structures and Concrete and Footing calculators. Demos, videos and project files are available on the web site.

**Structural Desktop, Incorporated**  
 6106 Highway 59 North, P.O. Box 6400  
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Structural Desktop provides AutoCAD-based methods to create geometric models compatible with analytical/ design programs. It converts analytical software databases into intelligent structural objects for the creation of contract documents. Structural Desktop has an extensive library of structural members from the AISC, SJI, LGSI, AISI and PCI. Prismatic sections and plate elements also are supported. The program can create design files using AutoCAD; read supported analytical/design files; create a model from any DXF or DWG; automatic drawing in 2D or 3D; detailed material take-off; interface with AutoCAD-based detailing packages; and create interface files for Architectural Desktop.

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HSS\_connex is a program dedicated for HSS truss connection design that complements the AISC HSS Connections Manual. The scope extends to welded T, Y, K (gap and overlap) and KT truss connec-

tions, including webs with flattened ends, multiplanar connections, double-chord connections, bolted flange-plate connections and other special cases. Full databases of cold-formed, round, square and rectangular HSS members are included for both the ASTM A500 specification (with AISC-specified section properties) and the CSA specification, for any HSS grade produced. The program works on all Windows platforms (Win95 and up), operates in either imperial or metric units, and Version 1.04 is now available.

#### Vahe Mn

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Intelligent Design & Generating Alternative Optimized Members of Steel Structure, Built-up from Plates: (Non-Compact Sections, AISC-1989/ASD and AISC-1999/LRFD): Computer program assumes structural analysis output and user-defined data as Input file, starts design with user-defined minimum section dimensions ( $B_{min}, TB_{min}/D_{min}, TD_{min}$ ). If section fails, automatically increases flange or web dimensions (B or TB or D or TD) using algorithm to design and generate alternative optimized member's sections, satisfying specification requirements and user-defined flange/web dimensions limits: ( $B_{min} \leq B \leq B_{max}, TB_{min} \leq TB \leq TB_{max}, D_{min} \leq D \leq D_{max}, TD_{min} \leq TD \leq TD_{max}$ ). Program provides alternative optimized I- or BOX-sections (column or beam or girder) and does not use any built-in or user-defined sectional file. This engine program can be linked to any analysis software.

#### Willcam, Inc. – Authorized resellers of Prokon Software

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The PROKON suite of structural analysis and design software provides solutions for structural and geotechnical engineering problems: frame and finite element analysis; steel member and connection design; reinforced and pre-stressed concrete design; reinforced concrete detailing; timber member design; and geotechnical analysis. Supported steel design codes: AISC-1989 ASD\*, AISC-1993 LRFD\*, BS5950-1990, BS5950-2000\*, CSA-S16.1-M94, Eurocode 3-1992, GBL 17-1988\*, IS800-1984\*, SABS0162-1984 (allowable stress design), SABS0162-1993 (limit state design). Items marked \* indicate partial support during implementation period.