

### ASVIC Engineering & Software

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Mech-Q Structural Steel Detailing (MST02) for AutoCAD, AutoCAD LT and IntelliCAD includes 2D and 3D steel shapes generator (ASTM/AISC CISC, DIN, BS) with weighted auto-BOM. Other powerful modules include: stairs module that draws from single- to multiple-flight stairs with auto-dimensioning and stringer fabrication detailer. Ladder utility: step-thru and side-step ladders, fully customizable and with auto-dimensioning. Beam-to-beam and beam-to-column connections detailer. Includes structural bracing module, hand railing, frames utility, purlins and girts, plates, welding symbols and more. Also includes beam designer module. Beam load cases include: simply supported, cantilever, propped and build-in beams. Multiple loads are allowed. The utility reports and plots stress and deflection diagrams, reactions and minimum allowable beam section. The software is easy to use and requires only minimum training. A single license costs \$650. ASVIC provides a free demo on its web site.

### AutoSD, Inc.

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AutoSD Steel Detailing runs inside AutoCAD 14-2004, LT 2000-2002 and IntelliCAD 2000 & 2001 for detailing structural and miscellaneous steel, erection drawings, roof frames, embedded items and general editing, beams, columns, bracing, stairs and rails, ramp and wall rails, ladders, and hip and valley. Automatic detailing with minimum input. You configure the program to your detailing requirements. Features beam-to-beam, beam-to-column, and vertical brace-to-column connection matching. Carry through piece marks. Import dxf files created by SDS/2, Xsteel, Steelcad and CVSPRO for editing. Extract shop bill information for import into material manager program by E. J. E. Industries and FabTrol. Extract CNC data for Franklin drill line and Peddmat. Backed by a 45-day money-back guarantee and free telephone support.

### CadVantage, Inc.

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CadVantage has three products: CVSPRO 8.3 for automatic structural detailing, CVSPRO ToolBox for miscellaneous detailing (stairs/rails), and SmartJoist to create joists lists and decking layouts. CVSPRO 8.3 is a *Modern Steel Construction* Hot Product. It's a stand-alone Windows system that combines piece-by-piece and grid-navigator input styles. Users click onto icons representing framing conditions, and enter other basic information found on a framing plan: the rest is automatic. Connections can be applied automatically, or specified from a user-definable library. Repetitive items, like connections, shapes, dimensions, etc. can be stored onto user-definable "Keeper" icons. Users can create multiple, re-usable "clients." CVSPRO can link with production systems like FabTrol and EJE. CVSPRO can be used on a "pay-per-use" basis. Users still can purchase an unlimited-use license, but also can use QuarterWare's virtual "tokens" to pay for the details they produce with CVSPRO. This does not require the user to be connected to the Internet. Learn more at [www.steeldetails.com/payperuse.htm](http://www.steeldetails.com/payperuse.htm).

### CDS, Inc.

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Asteel is a detailing system that allows users to create orderly and easy-to-read details with minimal input. Connection types automatically adhere to job and fabricator standards. The program has configuration options and preference settings so users can customize connections and the behavior of the program. Asteel produces detail drawings, mill orders, production control data, CNC data for management and fabrication systems, and engineering calculations for detecting weak connections. Asteel can be used in a network where many detailers work on the same job at the same time. On-site installation and training, context-sensitive online help, printed reference manuals, and telephone support are provided. Free updates are distributed several times each year. Trial versions are available at no charge.

### Computer Detailing Corporation

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**SteelLogic** SteelLogic creates plans, elevations and detail drawings of structural steel and miscellaneous metal, along with a bill of material, cutting and shipping lists, and other reports. The system uses the AutoCAD engine with SteelLogic tools and dialog boxes. The tools allow users to create items not created automatically. SteelLogic can be used to modify drawings created with 3D modeling programs. An in-depth knowledge of AutoCAD is not required. In addition to detailing stair stringers and railing, SteelLogic automatically can draw stair-framing plans with an unlimited number of different runs. Create enlarged details of connections for structural or miscellaneous work without concern about scaling. Railing posts are accessible, and tools for making special ones exist. Pans, nosings and support clips can be inserted with a single pick. An Optimal Cutting Program (multing) that produces an ordering and cutting report is available.

### Coutts Design Inc. (formerly 123-D Software)

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ZIPCAD is a CAD application with more than 60 CAD features, including infinite undo/redo, layers, line types, custom colors, entity snapping, shortcut keys, doors, windows, and context-sensitive help. Draw as-built quickly: enter measurements directly into ZIPCAD, which eliminates the need to draw existing conditions by hand and enter them into CAD off site. Develop designs anywhere. Draft details & SKs in the field. Drawings can be imported/exported to the PC via the DXF file format.

### Design Data

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SDS/2 ties detailing, connection design, building design, CNC data, and detail review into one product, providing updated information to engineers, shops, detailers, fabricators and field personnel. SDS/2 can save time, reduce errors, eliminate redundancies, and build strong relationships with steel partners. Design Data's support staff and users group will assist you in getting the job done.

## Detailing Software

### DetailCAD

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DetailCAD® is an automated program working inside AutoCAD® that produces shop details with minimum input and enhancement. Beams, columns, bracing, stairs, HR and welded frames can be produced directly from framing-plan input or piece-by-piece input. Anchor-bolt and erection plans, elevations, and an advance bill table can be produced from plan-input method. Plan input is done with dialog boxes, by inputting grid locations, adding columns to grid crossings, and then inputting beams and/or joists at each level. Press a button to generate details or a 3D model. Piece-by-piece input is done by opening a dialog box, filling in framing sizes and/or distances, and pressing a button to draw the piece. DetailCAD produces CNC, punch-card files or plate details for each shop drawing for different CNC equipment.

### Digital Canal Corporation

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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.

### John Williams Detailing, Inc.

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AutoStructural drawings—beams and columns. Includes AISC database. Beam auto back off, blocking and or trims as required from info in the database. Auto gauge look-up for column cap plates. All math for columns and beams done by the program, reducing chances of detailer error. Input for members from command line and dialog boxes. Defaults are from a job data file entered by the detailer in a dialog-

box interface. Therefore, in many cases "enter" is the only key required. All member sizes are picked from a dialog box or entered at the command line. Beam program designs connections for simple beam spans. Many extras are included with AutoStructural, like auto-dimensioning, anchor-bolt layouts and details, and help for erection plans. AutoStair features auto drawings and dimensions stair stringers, so they will be ready for fabrication. Free unlimited support.

### MacroSoft

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Detail is a 3D structural steel detailing system. By using simple input forms (and soon-to-be-released visual modeling environment), the detailer defines the structural members in the 3D model, and then generates plans and elevations to check the model. Connections are applied in a global general fashion, with more than 150 intelligent connection types that automatically resolve clearance conflicts between members and other connections. Detail then automatically generates and composes complete connection material, shop drawings and final erection drawings from the 3D model. Included is a full suite of reports, as well as downloads to MIS software and CNC equipment.

### MultiSUITE Software Inc.

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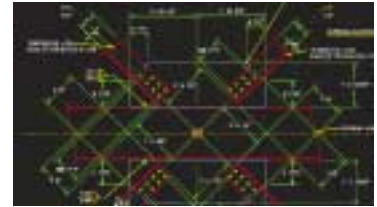
MultiSUITE Software has been providing worldwide professional steel and concrete solutions for AutoCAD for over ten years. Development and testing of all MultiSUITE Software products is carried out for all AutoCAD platforms including AutoCAD LT98 (SE) and above. The sales and support team are have structural backgrounds and many years of CuttoCAD experience.

Software development is ongoing and interactive. MultiSUITE welcomes comments about software, and user feedback from the existing user base. The existing users work in the consulting engineering, process plant and fabrication industries.

### Omnitech Associates

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Omnitech Associates provides 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, and 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 features new options for gusset and beam connections to the column, and for HSS brace-to-gusset connections. Both programs generate detailed calculation reports, drawings, and DXF files. ASD and LRFD versions are available.

### SoftDraft, LLC

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SteelPLUS 2004 is a suite of detailing and drafting applications that work with AutoCAD Release 14

through AutoCAD 2004. Includes structural shapes, joists and girders, bolts/nuts/washers, steel floor and roof deck, and welding symbols. Databases include AISC, MAISC, and CISC. Visit the web site for more information.

### Soft Steel Inc.

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Softscan is a stand-alone software system that reads any DWG, DXF, or 3D-Cad/SmartKad file directly (without Autocad), and creates a file that can be imported into FabTrol, EJE, Steel 2000, Romac, Structural Software, and Microsoft Excel. This eliminates typing the bill of materials into these software packages. Softscan also produces reports based on the bill of material, including a mill-order report, cutting list, nesting report, bolt summary, and connection-material summary report. Once you configure Softscan to recognize your bill of material, you simply select your drawings from an explorer-style screen, and click the SCAN button. Softscan automatically locates and scans the bill of material and reads drawing files directly. Softscan supports imperial and metric input and output, sequencing, mill-order page-line numbers, revision numbers, and just about anything else found in a bill of material.

**SSDCP, Inc.**

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SSDCP is an AutoCAD-based product for making structural and miscellaneous steel fabrication drawings, plate-work details, anchor bolt plans, erection plans, e-sheet sections, and more. Its draw-



ings follow AISC standards. SSDCP includes imperial and metric versions using US, Canadian, and European steel shapes. It allows users to quickly detail beams, columns, bracing, stairs, handrails, frames, tilt-up panels and full-size shop templates. SSDCP programs are purchased individually or in bundles. They can be used alone or with other systems like CVSpro, SDS/2 and Xsteel. Users get free technical support and a 60-day money-back guarantee. The learning curve is less than a day. No maintenance fees. Yearly updates.

## productcasestudy

**The Disney Concert Hall, Los Angeles**

Designed as the new home for the Los Angeles Philharmonic Orchestra, the state-of-the-art new Disney Concert Hall merges artistic and technical brilliance in one steel structure. The 2,400-seat concert hall encloses approximately 270,000 sq. ft. above grade, with an exterior of metal-clad sail-like planes connected by panels of aluminum and glass



curtain walls and skylights. Structural Engineers John A. Martin & Associates needed to design a structure that would support vertical and lateral loads within the shape constraints of the fluid building outline defined by Architect Frank O. Gehry & Associates, Inc.

The entire set of construction documents for the project were prepared in three-dimensional computer models. With almost no repetitive geometry, the software tools used for the analysis and design of the project would impact its cost and feasibility as much as the selection of structural material.

After many design studies, the team chose steel moment-resisting space frames for the structural system. However, prior to the start of construction, the 1994 Northridge earthquake occurred, and the City of Los Angeles revised the design and testing requirements for steel moment frames. The structural engineers revisited their design options, and once again chose steel—this time in the form of braced frames and trusses—for its economy, and for its ability to satisfy the project's architectural vision.

Once the system had been chosen, the team had to generate a model for analysis and design. The architectural modeling work was done in CATIA, a large CAD/CAM system. Working closely with the architects, the structural engineers developed and extruded a wire-framed 3-D CATIA structural model, which they were then able to convert into one of the many input file formats supported by SAP2000. SAP2000, a PC-based structural package by Com-

puters and Structures, Inc., was chosen for its analytical techniques, large capacity and integrated design capabilities.

The model was analyzed for a full range of gravity and lateral loads, including a full three-dimensional dynamic analysis using SAP2000's Ritz vector technique. All steel members were analyzed, stress-checked, drift-checked and optimized within SAP2000, including composite beam and girder design, with the design results exported back to the CATIA model.

The structural analysis and design of the Disney Concert Hall represents one of the most complex projects of this size ever attempted. It required the full-time effort of 20 engineers and drafters for more than two years, and only through the careful selection of materials and computer tools were they able to see this project through to completion. ★



## sidenotes

**National Building Museum**

Don't miss the National Building Museum's exhibit of Gil Garcetti's black-and-white photographs of the construction of the Walt Disney Concert Hall. The photos celebrate the achievement of the ironworkers who assembled the steel frame and applied the stainless steel skin to the building. Garcetti's photographs were taken during the summer and fall of 2001 and the winter of 2002. They document the teamwork and strength that helped the ironworkers complete one of the most challenging construction projects of the recent past. The exhibit also includes panoramic images of the finished building.

The exhibition will be on view at the museum (located in Washington, D.C.) through August 22, 2004. A range of programs focusing on the ironworkers will be offered. On February 12, Karl Koch III, co-owner of the Koch Erecting Company, the firm responsible for the construction of the World Trade Center, will present an insider's look at the construction of the Twin Towers. In late spring, the Museum will host writer Jim Rasenberger, who will speak on the topic of his new book *High Steel: The Daring Men Who Built the World's Greatest Skyline*. Museum hours are Monday through Saturday from 10 a.m. to 5 p.m., and Sunday from 11 a.m. to 5 p.m. Admission is free. For more information, call 202.272.2448 or visit [www.nbm.org](http://www.nbm.org). ★

## **SteelCad Consulting Corporation**

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SteelCad is automated steel detailing and fabrication software. It complies with AISC and CISC standards, and steel detailing methods. Drawings are shop-ready, with reference dimensions, running dimensions, designed end connections, shop bills, piece marks, weights, and shop and field bolts. It produces erection drawings and generates design calculations. SteelCad details most structural beams, including skewed, sloping, cantilever, wall-bearing, and moment beams. It details columns, including spliced columns and fire-protected columns. SteelCad also details vertical and horizontal bracing (including double-angle and x-bracing), stairs, and ladders (with or without cages). Any member can be made from almost any type of structural shape (WF, WT, S, C, MC, L, plate, double-angle, rod, TS, HSS, or pipe, among others). For the shop, SteelCad can produce gather sheets, material lists, and cut lists, and complete data for export to most production control or CNC software. It also matches almost any shop-standard piece-marking system and bill layout.

## **StrucSoft Solutions**

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ProSteel 3D, a 3D modeling and drafting tool, is an AutoCAD-based software featuring ARX and COM technologies, and is intended for all shape-based (structural steel, aluminum, wood, etc.) constructions. Use 3D drafting software to communicate with various analysis software via neutral file formats. ProSteel uses international sections and connections, and operates in imperial and metric systems. Generate plans and elevation drawings, BOMs, create custom shapes, and update 2D drawings automatically from the 3D model. COM technology allows you to create customized versions of the software—for parametric metal reservoirs and tanks, microwave tower applications, and more, through VB programming.

## **Tekla**

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Tekla develops model-based software solutions for structural engineers, detailers and fabricators. Create real-life models of construction projects. All relevant information is contained in the 3D model, and you can share or update your data with others during different phases of the building cycle. Your portion of the project is guarded by lock attributes that you define, along with 3D visualization and project-management tools. Support for CIS/2 reduces restrictions when working with your partners and clients.