

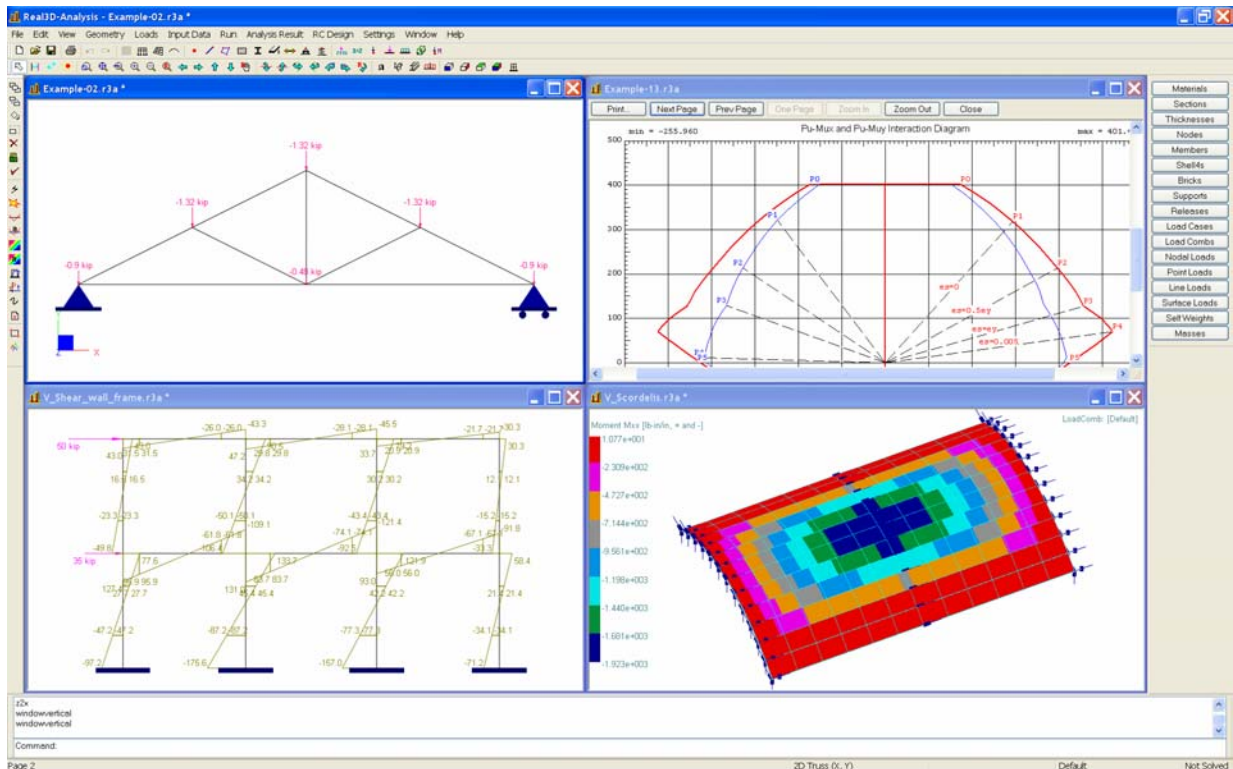


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Real3D-Analysis (tm)



is a powerful frame-finite element analysis and design program built from ground up, with latest technologies from the fields of finite element analysis, numerical computation and computer graphics. It brings accuracy, reliability, and ease of use to average structural engineers to perform static and dynamic analyses and design of general truss, frame, plate and shell structures. It features unique 128-bit floating point solver, multiple document interface, spreadsheet input and output as well as compelling graphics built upon industry standard OpenGL(R).



Frame & Finite Elements

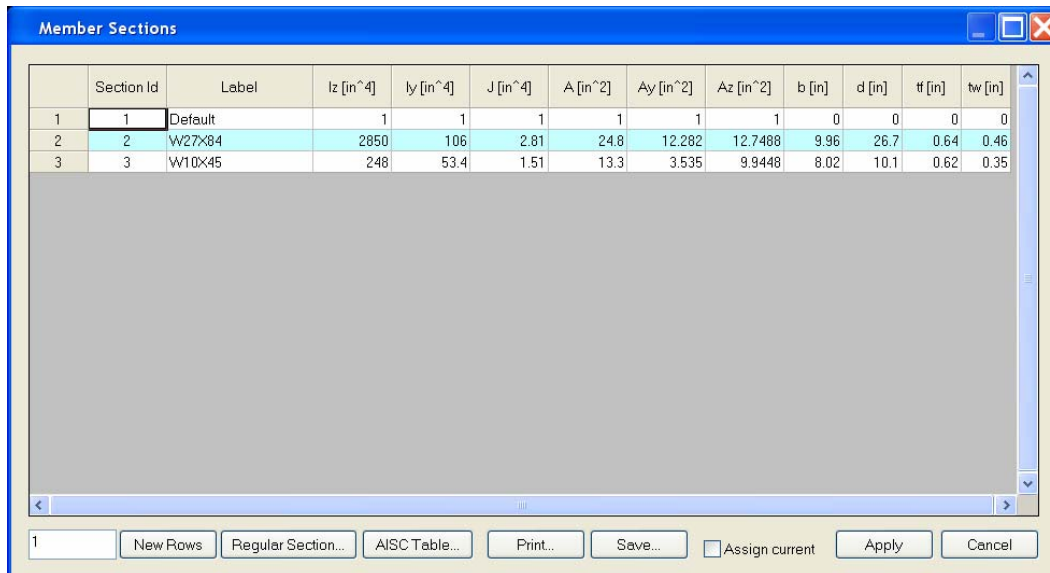
- 2D and 3D frame (beam and truss) elements
- 2D and 3D four-node plate/shell element, with thick or thin plate bending element (for slab modeling) and compatible/incompatible in-plane stress element (for shear wall modeling)
- 3D eight-node solid (brick) element with compatible and incompatible formulations
- Linear, compression-only, tension-only nodal, line and surface spring elements
- Moment releases on frame element
- Forced displacements on supports
- Nodal, point forces and moments, line, true area load (on members), surface forces (on shells) and self weight

Analysis and Design Options

- Static linear analysis
- Geometric nonlinear (P-Delta) analysis
- Frequency analysis
- Standard 64-bit (very fast) solver and unique 128-bit floating point solver (extremely accurate)
- Concrete design for beams, columns and slabs according to ACI 318-05, -02. It includes such as features as exact biaxial column interaction diagrams, automatic moment magnification, cracked section properties, Wood-Armer moments, color coded plots for member capacity and reinforcement contour plots for plates

User Interface Features

- Multiple documents may be opened at the same time; each document may have multiple views with different display settings.
- Spreadsheets for input data and results
- Graphically drawing nodes, frames and finite elements via mouse click or keyboard in command window
- Quality 3D graphical rendering built on OpenGL(R) with hidden line or surface removal. Graphics display includes loading diagram, moment and shear diagrams for beams, contours for shells and solids, deflection diagram and annotations for input and results. Structural response animation is available for result diagrams and contours
- Powerful automatic model generations for continuous beams, 2D and 3D frames, 2D and 3D shells, arc beams and non-prismatic beams. Include AISC steel shape database, ASTM rebar database, regular sections and standard load combinations



The screenshot shows a window titled "Member Sections" with a table of section properties. The table has 13 columns: Section Id, Label, Iz [in^4], Iy [in^4], J [in^4], A [in^2], Ay [in^2], Az [in^2], b [in], d [in], tf [in], and tw [in]. There are three rows of data. Row 1 is the "Default" section. Row 2 is a W27x84 section. Row 3 is a W10x45 section.

Section Id	Label	Iz [in ⁴]	Iy [in ⁴]	J [in ⁴]	A [in ²]	Ay [in ²]	Az [in ²]	b [in]	d [in]	tf [in]	tw [in]
1	Default	1	1	1	1	1	1	0	0	0	0
2	W27x84	2850	106	2.81	24.8	12.282	12.7488	9.96	26.7	0.64	0.46
3	W10x45	248	53.4	1.51	13.3	3.535	9.9448	8.02	10.1	0.62	0.35

At the bottom of the window, there is a "Section Id" input field with the value "1", and several buttons: "New Rows", "Regular Section...", "AISC Table...", "Print...", "Save...", "Assign current" (checkbox), "Apply", and "Cancel".

spreadsheet

- Flexible editing features such as undo/redo, duplicate, move, scale, delete, revolve, extrude, splitting beams, sub-mesh shells, node and element merging
- Many different selection methods such as window/point select, select by IDs, select by properties etc, with options to freeze or thaw parts of a model. Ability to pan, zoom and rotate in real time
- Text and graphic report in html format. Graphic report may contain multiple images. Text report may be saved in plain text format.

- Print previews for graphics and text reports
- Importing from and exporting to DXF files
- English or Metric units or mixture of the two
- True 32-bit, fully integrated Windows application written from ground up entirely (graphical user interface and solver) in standardized, object-oriented C++ programming language, resulting in a truly robust software for engineering community

System Requirements

- Computer CPU: Intel Pentium based; 450 MHz or faster is recommended
- Memory (RAM): Minimum 64 MB; 128 MB or more is recommended
- Operating System: Windows 2000, XP or Vista
- Video Card: Minimum 4MB, OpenGL(R) hardware acceleration essential

Program Capacities

Real3D-Analysis uses dynamic memory allocation technique which does not require preset program capacity. However, in order to make the program more affordable and to meet different needs, we offer Real3D-Analysis in different versions as indicated in the following table

	Professional	Small Business	Educational [2]	Evaluation
Nodes	No limit [1]	1500	No limit	16
Frames	No limit	1500	No limit	No limit
Shells	No limit	1500	No limit	No limit
Solids	No limit	1	No limit	No limit
Load Cases	No limit	50	No limit	No limit
Load Combinations	No limit	50	3	3
64-bit Solver	Available	Available	Available	Available
128-bit Solver	Available	Not Available	Available	Available
Concrete Design	Available	Available	Not Available	Not Available
Commercial Uses	Yes	Yes	No	No

[1]. "No limit" refers to "no practical limit". For example, the actual limit for the number of nodes in the program is $2^{31} - 1 = 2,147,483,647$. However, your computer probably will run out of memory long before it reaches this limit

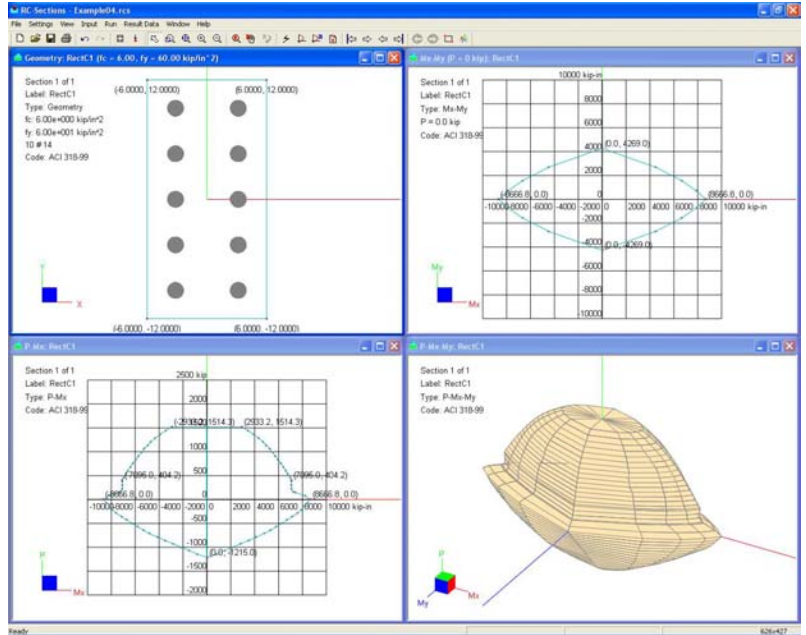
[2]. Educational version is only available to university faculty members in the United States



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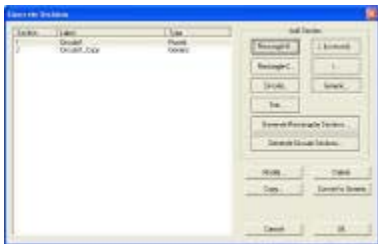
RcSections (tm)

is a powerful 32-bit Windows program designed specifically for structural engineers to perform axial-flexural analysis and design of concrete sections (beams, columns or walls) according to ACI 318-05/02 and ACI 318-99. It analyzes the uniaxial- or biaxial-bending capacity of multiple sections of various regular shapes (rectangular, round, Tee, I, L) and generic shapes (with openings) simultaneously in a fast and user-friendly manner. Multiple load sets may be input and checked against capacities of the sections. It features tabulated strain-P-M at every user defined neutral axis step, 2D P-Mx and P-My interaction diagrams, and incredible 3D P-Mx-My interaction surface built upon OpenGL(R)!

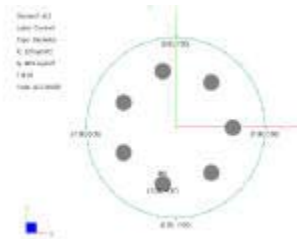


Key Features

- Codes: ACI 318-05, -02 and -99
- Unit: English, Metric or Mixed
- Section Shapes: Unlimited number of rectangular, tee, circular, I, inverse L and generic (with up to 3 openings) sections. Ability to convert various regular sections to generic sections. Ability to parametrically generate multiple rectangular or circular sections with different sizes and reinforcement configurations. Great tool for shortening the trial-and-error design process



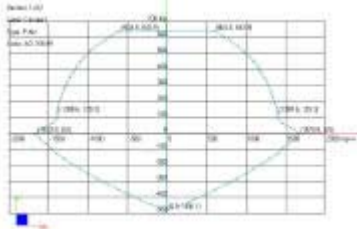
section dialog



circular section

- Loads: Unlimited number of load sets (Pu, Mux, Muy). Adequacy of each section to carry the loads is computed in terms of simple capacity ratio
- Solver: Unique, exact and blazingly fast solution algorithms that can accurately solve hundreds even thousands of sections uniaxially or biaxially simultaneously in seconds. Solution options include strength reduction factor, tied or spiral confinement, variable number of neutral axis steps, variable biaxial angle steps, variable axial steps for display and inclusion or exclusion of displaced concrete

- Result Data: Very detailed result data tabulated in spreadsheets. P-M result includes neutral axis depth, eccentricity, maximum tensile strain and strength reduction factor, as well as axial capacity P and moment capacity M



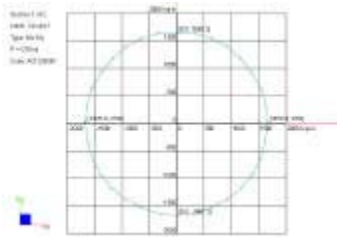
P-Mx interaction diagram

result in spreadsheet

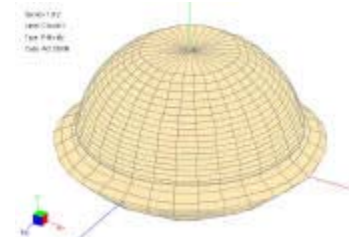
- Diagrams: 2D P-Mx, P-My and Mx-My interaction diagram and 3D P-Mx-My interaction surface or wire-frame. Key points shown automatically on the interaction diagrams. Input loads shown with different colors on the 2D/3D diagrams or surface denoting the adequacy of the section for each load
- Printing: Automatic printing of very impressive interaction diagrams for multiple sections. If you happen to have PDF making software, you will be able to create your very own design handbook similar to CRSI Handbook!

User Interface Features

- Easy input through menus, toolbars, dialog boxes and spreadsheet
- Multiple images such as section geometry, P-M interaction diagrams may be captured automatically. Captured images may be saved or printed



Mx-My interaction diagram



P-Mx-My interaction surface

- Results detailed in the spreadsheets. May be copied and pasted to your favorite spreadsheet program such as EXCEL (So you may even construct interaction diagrams of your own style!)
- Other nice features such as undo/redo, multiple document interface, multiple views, real-time zooming, panning and rotation, and customizable report in ASCII text file format or HTML file format

System Requirements

- Computer CPU: Intel Pentium based; 450 MHz or faster is recommended
- Memory (RAM): Minimum 64 MB; 128 MB or more is recommended
- Operating System: Windows 95 (OSR2) or later; Windows NT 4.0 or later, Windows 2000, XP or Vista is recommended
- Video Card: Minimum 4MB, OpenGL(R) hardware acceleration essential