



RAM STEEL®

RAM STRUCTURAL SYSTEM'S PRODUCTIVITY TOOL FOR GRAVITY ANALYSIS AND DESIGN OF STEEL STRUCTURES

RAM Steel is powerful and versatile special purpose software for the analysis and design of steel building structures. It is useful in the design and analysis of commercial, institutional, residential and industrial buildings. As part of the RAM Structural System, RAM Steel works from a model created with the RAM Modeler to accurately compute tributary loads to all members, reduce live loads in accordance with applicable building codes, and design steel and steel composite beams and girders, steel joists and joist girders, steel columns and base plates for every level in the entire structure.

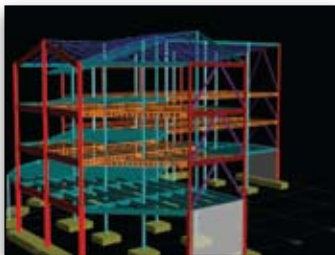
Design Expertise

RAM Steel is developed, tested and supported by structural and professional engineers with extensive industry experience. That expertise in building codes, construction techniques, materials and the design process is embodied in the program; careful consideration has been given to the needs of the engineer in the design of steel structures and in the execution of a design project. In addition, an extensive set of design criteria is available that allows the user to customize the designs in accordance with office standards and local practices. RAM Steel is unmatched in the industry for accuracy, completeness and quality of designs.

The engineer is freed from the mundane and repetitious tasks and allowed to use creativity and engineering experience. RAM Steel allows you to be more productive, with a greater confidence in the resulting designs.

Advanced Modeling Capabilities

The RAM™ Modeler provides for the creation of a 3D model of the entire structure, including roof and floor loads; beam, column, brace and walls; and slab properties, openings and edges. Powerful yet easy to use graphical model generation features are provided which allow complex floor and building systems to be modeled in a short time. Changes required can be quickly accommodated.



Steel columns, steel and steel composite beams, steel joists, and CMC SmartBeams



Complicated framing designed quickly and efficiently



Powerful design capabilities to quickly optimize designs or analyze alternative schemes

RAM Steel provides designs of composite and noncomposite beams and girders, steel joists and joist girders and CMC Smartbeams.

Enhanced Productivity

RAM Steel automates virtually every step of the design process. By automating these tedious and time consuming tasks, the engineer can quickly obtain an accurate design. Alternative framing configurations may be examined in a short period of time, resulting in substantial timesaving for the Engineer and a more economical design for the client.

The interface with CAD software permits rapid generation of framing plans, saving significant drafting time and reducing the errors associated with manual information transfer.

Steel Beam Design

RAM Steel provides designs of composite and noncomposite beams and girders, steel joists and joist girders and CMC Smartbeams. In addition to the automated optimization of beam sizes, existing designs can be checked. Alternate sizes can be investigated and, if desired, replace the optimized sizes. Tributary loads from surface, line and point loads, loads on girders from beams, live load reduction factors, and effective flange width are all automatically calculated. User-specified design considerations such as depth restrictions, camber limits can be specified. The floor framing can be checked for vibration based on the procedures of AISC/CISC Design Guide #11 and SCI Publication P354.

Steel Column Design

RAM Steel designs columns and base plates. Axial loads, unbalanced moments due to pattern loading and connection eccentricity, live load reductions and bracing conditions are automatically calculated. Optimum sizes may be obtained or existing designs analyzed.

SYSTEM REQUIREMENTS

Processor:

Intel Pentium or AMD Athlon

Operating System:

Windows Vista, XP, and 2000

RAM:

128MB minimum recommended

Hard Disk:

100MB free disk space recommended

Display:

OpenGL 3D graphics supported

RAM Foundation requires that RAM Modeler and either RAM Steel or RAM Frame be installed

ABOUT BENTLEY

Bentley Systems, Incorporated is the global leader dedicated to providing comprehensive software solutions for sustaining infrastructure. Architects, engineers, constructors, and owner-operators are indispensable in improving our world and our quality of life; the company's mission is to improve the performance of their projects and of the assets they design, build, and operate. Bentley sustains the infrastructure professions by helping to leverage information technology, learning, best practices, and global collaboration – and by promoting careers devoted to this crucial work.

For more information, visit www.bentley.com or call 1-800-BENTLEY

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RAM STEEL AT-A-GLANCE

Modeling and Analysis

- Powerful special purpose commands for modeling buildings allows rapid modeling of complex floors and roofs
- Allows changes to be made easily and quickly
- Orthogonal, radial, skewed and rotated grid systems; moving or rotating grids causes the associated members to move accordingly
- Model includes all beams, columns, braces, walls, decks, openings
- Model includes surface loads of any complexity, line loads and concentrated loads
- Snow and snow drift loads
- Database of common deck types
- Design loads automatically and accurately calculated from model floor and roof loads, with reducible Live Loads automatically reduced per IBC, UBC, SBC, BOCA, NBC of Canada, BS 6399, AS/NZS 1170.1, China GB 50009, Hong Kong and Eurocode
- Automatically includes self weight of slabs, decks, beams, columns and walls
- Fully interactive design investigation allows user control over the final beam

Beam Design Features

- Design of composite and noncomposite steel beams per AISC 360-05 ASD and LRFD, AISC ASD 9th Ed. with Supplement #1 and LRFD 3rd Ed., BS 5950:2000, CAN/CSA S16-01 and Eurocode
- Selection of Steel Joists, including K-, LH-, DLH- and KCS series joists,

and designation of Joist Girders

- Design of composite and noncomposite castellated and cellular CMC Smartbeams
- Composite beam effective flange widths calculated automatically
- Precomposite condition checked using construction Dead and Live loads
- Shored or unshored
- Optimization based on Code requirements and extensive user-specified criteria, and allows investigation and assignment of user-specified sizes
- Camber automatically calculated and included with the deflection calculation, with user-specified settings to suppress or control the amount and increments of camber
- Floor Vibration analysis per AISC Design Guide #11 and SCI Publication P354
- Round and rectangular web openings designed per AISC Design Guide #2 and SCI Publication 068
- Simple span or cantilevered beams with automatic pattern loading of Live Load
- Load, shear, moment and deflection diagrams with results available at any point along span

Column Design Features

- Design of columns and baseplates per AISC 360-05 ASD and LRFD, AISC ASD 9th with Supplement #1 and LRFD 3rd, BS 5950:2000, CAN/CSA S16-01 and Eurocode
- Optimization based on Code requirements and extensive user-specified criteria

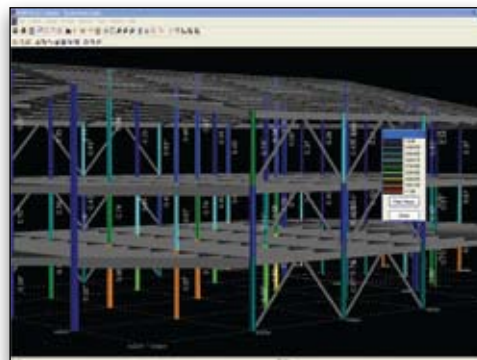
- Moments induced by beam-to-column connection eccentricity automatically calculated, and the effects of pattern loading the Live Load around the column are included

Integration

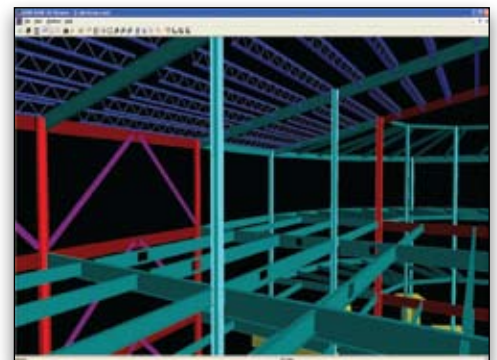
- As part of the RAM™ Structural System, RAM Steel is completely integrated with RAM™ Concrete, RAM Frame®, and RAM™ Foundation
- Link to RAM™ Connection for connection design
- Link to RAM™ CADStudio for creation of structural drawings
- CIS/2 CIMsteel file
- Two-way link with Bentley® Structural
- Two-way link with Autodesk Revit
- RAM DataAccess API provides 3rd-party programs with direct access to model data and design results

Output and Drawing

- Comprehensive set of reports, including detailed Design reports and concise Summary reports
- All reports can be viewed on-screen, printed or saved in spreadsheet file format
- Comprehensive material takeoff, including piece count, steel tonnage and stud count allowing for comparison of various design schemes
- Automatic generation of CAD DXF floor plans, including beam size, studs, camber and reactions as well as column schedules



Color-coded column design results



Real design capabilities for real buildings