



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 to analyze and design steel building structures, including commercial, institutional, residential, and industrial buildings. As part of the RAM Structural System, RAM Steel accurately computes tributary loads, reduces live loads in accordance with applicable building codes, and designs steel and steel composite beams and girders, steel joists and joist girders, steel columns, and base plates for each level of a 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 user's needs to design steel structures and to execute 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 design quality.

RAM Steel provides designs of composite and non-composite beams and girders, steel joists and joist girders, and cellular and castellated beams.

Enhanced Productivity

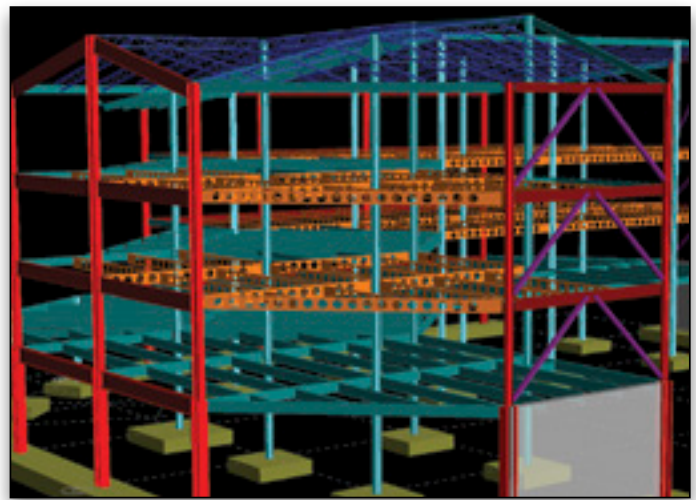
RAM Steel automates virtually every step of the design process. By automating these tedious and time-consuming tasks, the engineer can quickly obtain an accurate design. Alternative framing configurations can be examined in a short time period resulting in a more economically feasible design for the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

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

This frees the engineer from mundane and repetitious tasks. RAM Steel lets users be more productive, and have more confidence in the resulting design.

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,



Steel columns, steel and steel composite beams, steel joists, and cellular beams

openings, and edges. Powerful yet easy-to-use graphical model generation features are provided. These tools allow complex floor and building systems to be modeled in a short time, while quickly accommodating changes.

Steel Beam Design

RAM Steel provides designs of composite and noncomposite beams and girders, steel joists and joist girders and cellular and castellated beams. In addition to the automatically optimizing beam sizes, RAM Steel enables existing designs to be checked. (Moreover, alternate sizes can be investigated and replaced with the optimized size.) RAM Steel automatically calculates tributary loads from surface, line and point loads, loads on girders from beams, live load reduction factors, and effective flange widths. Design considerations such as depth restrictions and camber limits can be specified. 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, and automatically calculates axial loads, unbalanced moments due to pattern loading and connection eccentricity, live load reductions and bracing conditions. Optimum sizes can be obtained and existing designs can be analyzed.

System Requirements

Processor

Intel or AMD processor 2.0 GHz or greater

Operating System

Windows 7, 7 x64, 8.1, and 8.1 x64

RAM

2GB minimum recommended

Hard Disk

500MB free disk space recommended

Display

OpenGL compatibility recommended

Find out about Bentley
at: www.bentley.com

Contact Bentley

1-800-BENTLEY (1-800-236-8539)

Outside the US +1 610-458-5000

Bentley Systems India Pvt. Ltd.

203, Okhla Industrial Estate

Phase-III, 2nd Floor

New Delhi-110 020

India

T +91 11 41614122

Global Office Listings

www.bentley.com/contact

RAM Steel At-A-Glance

Modeling and Analysis

- Powerful special purpose commands to quickly model complex floors and roofs
- Changes can be made easily and quickly
- Orthogonal, radial, skewed, and rotated grid systems; moving or rotating grids allows associated members to move accordingly
- Model includes all beams, columns, braces, walls, decks, and 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 are 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 ASD and LRFD, AISC ASD 9th Ed. with Supplement #1, AISC LRFD 3rd Ed., BS 5950, CAN/CSA S16, AS 4100, AS 2327.1, and Eurocode
- Automatically calculates composite beam effective flange widths
- A selection of steel joists, including K-, LH-, DLH-, and KCS series joists, and designates joist girders
- Designs composite and non-composite castellated and cellular CMC Smartbeams and Westok beams
- 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
- Automatically calculates camber and includes 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

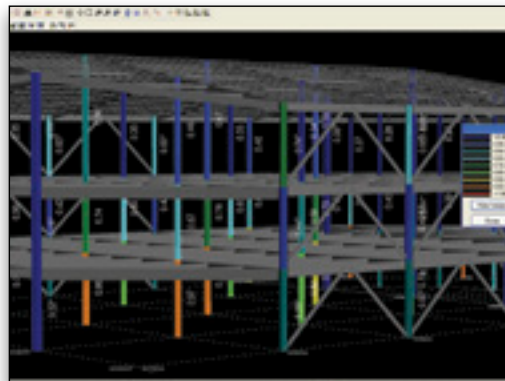
- Design of columns and baseplates per AISC 360 ASD and LRFD, AISC ASD 9th with Supplement #1, AISC LRFD 3rd, BS 5950, CAN/CSA S16, AS 4100 and Eurocode
- Optimization based on code requirements and extensive user-specified criteria
- Automatically calculates moments induced by beam-to-column connection eccentricity and includes the effects of pattern loading the live load around the column

Integration

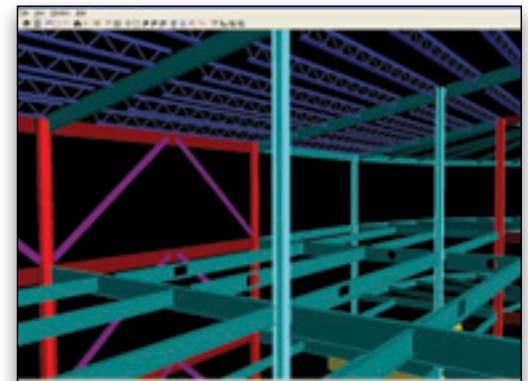
- As part of the RAM Structural System, RAM Steel is completely integrated with RAM Concrete, RAM Frame, and RAM Foundation
- Link to RAM Connection for connection design
- CIS/2 CIMsteel file
- Two-way link with Bentley's AECOsim Building Designer
- Two-way link with Autodesk Revit and Tekla
- RAM DataAccess API provides third-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 allows for comparison of various design schemes
- Automatically generates of CAD DXF floor plans, including beam size, studs, camber and reactions, and column schedules



Color-coded column design results



Real design capabilities for real buildings