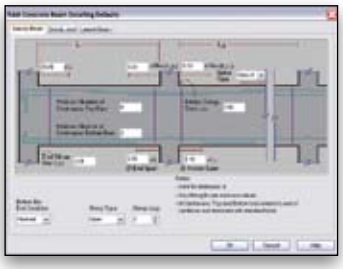
PRODUCT DATA SHEET

RAM™ CONCRETE

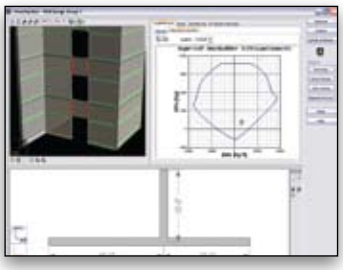
RAM STRUCTURAL SYSTEM'S PRODUCTIVITY TOOL FOR GRAVITY ANALYSIS AND DESIGN OF CONCRETE STRUCTURES

RAM Concrete is the only fully integrated concrete analysis, design and drafting package for structural engineers. While other software may make the same claims, no other package actually delivers by allowing you to model an entire concrete structure. RAM Concrete is part of the RAM Structural System, the only system in the world which allows for the complete analysis, design and drafting of the lateral and gravity framing systems of both steel and concrete buildings as well as their foundations.

Flexible Beam Design Criteria



User Specified Detailing Default



Powerful interactive review and revision

Time Savings

With RAM Concrete, you can perform complete gravity and lateral load generation and distribution, including live load reduction and skip loading per ACI-318; design and detail reinforcing requirements for beams, columns, and walls per ACI 318, BS 8110, CP 65, or AS 3600 design codes, and produce complete CAD files for floor framing plans, frame elevations, as well as beam and column schedules.

A complete production tool, RAM Concrete automates the most time-consuming design tasks. It dramatically increases productivity by significantly reducing design time, allowing for more creativity through the quick exploration of design options.

Design Versatility

RAM Concrete accommodates a wide range of member types and design options. Rectangular and "T"-shaped joists, beams, and girders, as well as pan-joist systems, and rectangular and circular columns with tied, circular, or spiral shear reinforcement are all supported. Walls of virtually any plan configuration and cross-section, including unlimited wall openings, may be designed for axial-flexural and shear loads. Members may be designed and detailed for gravity requirements or for code-prescribed seismic requirements. American and British standard reinforcing bars are supported and the user may create customized reinforcing sizes to be used in the design. Beam, column, and wall reinforcement may be automatically sized by the program or specified directly by the engineer.

Design Detail

RAM Concrete generates extensive design information and detailed prescriptive code checks. RAM Concrete not only provides the size, location, and quantity of the required member reinforcing, but also specifies the bar end conditions, bar extents, and stirrup and tie configuration. Spliced and hooked beam bars are chosen where necessary by the optimization routine and may also be specified directly by the user. An extensive set of design criteria menu options provides flexibility in customizing designs.

The learning curve for RAM Concrete is remarkably small and engineers can begin producing designs quickly

Quick Start Up Time

The learning curve for RAM Concrete is remarkably small and engineers can begin producing designs quickly. Once the building geometry is established, a minimal amount of additional information is needed to design reinforcing and perform code checks for the concrete members.

Design Interaction

RAM Concrete allows the interactive revision of both member sections and reinforcing without requiring additional analysis.

Easy to Interpret Output

RAM Concrete offers a wide range of design reports with both general analysis settings and design criteria used during the design, and detailed member strength and deflection checks. The DXF feature may be used to create concrete beam and column schedules, wall reinforcing elevations, and floor plan drawings.

SYSTEM REQUIREMENTS

Processor:
Intel Pentium or AMD Athlon

Operating System:
Windows Vista, XP, and 2000

RAM:
512MB recommended

Hard Disk:
100MB free disk space to install RSS

Display:
64MB Video Card with OpenGL Compatible

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.

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Bentley Sustaining Infrastructure

RAM CONCRETE AT-A-GLANCE

Modeling
- Quick modeling of gravity and lateral concrete structures
- Special commands to ease modeling of pan-joist systems
- Automatic calculation of T-shaped beam sections taking into consideration adjacent slab conditions
- Integration with the RAM Structural System means reduced learning curve for current users
- Integration with RAM Concept for reinforced and post-tensioned slabs and mats

Analysis
- Automatic calculation of member section properties, including effective flange widths for T-sections and material properties per design code
- Automatic or manual user-definition of beam lines for skip loading
- Automatic Finite Element model creation for gravity force analysis per ACI 318
- Automatic gravity load distribution and live load reduction
- Automatic live load skip loading for column forces incorporating ACI 318, Section 8.8
- Automatic live load skip loading for beam forces incorporating ACI 318, Section 8.9
- Comprehensive reports of beam gravity design envelopes and column design forces
- Complete integration with RAM Frame for generation of lateral loads and member forces
- Building Codes supported include IBC, UBC, BOCA, SBC, BS 6399, AS/NZS 1170.1, China GB 50009, Hong Kong and Eurocode

Column Design
- Automatic load combination generation per major building codes, ACI 318, and BS8110
- Slenderness considered per ACI 318 Sections 10.11 through 10.13 including automatic effective length and K-factor calculations
- Automatic column force generation from gravity and lateral analysis
- Consideration of ACI 318 and BS8110 prescriptive and strength specifications for reinforcing design including spacing, bar cover, and reinforcement ratios
- Automatic reinforcing selection for multiple bar layouts for shear, axial, and bending
- Fully interactive design and revision of reinforcing layouts for longitudinal and transverse reinforcement
- Automatic biaxial moment interaction curve generation and display
- Graphical display of all automatically generated load points in interaction curve

Beam Design
- Automatic load combination generation per major building codes, ACI 318, and BS8110
- Automatic beam force envelope generation from gravity skip load forces and lateral analysis forces
- Consideration of ACI 318 and BS8110 prescriptive and strength specification for reinforcing design including spacing, bar cover, and reinforcement ratios
- User specification of design and detailing criteria to control automatic design of reinforcing
- Fully interactive design and revision of reinforcing, including quantity, size, location and end conditions of all bars
- Graphical display of capacity and demand envelope for moments and shear along full length of beam lines
- Graphical display of reinforcement layout along beam length
- Immediate update of capacity curves for user change in reinforcing
- Immediate and Long Term Deflections

Wall Design
- Full 360 degree axial-flexure interaction surface generation and shear evaluation for horizontal and vertical wall cross sections
- Checks for prescriptive code requirements including reinforcing spacing, reinforcing ratio, and confinement
- Walls can be designed either as separate individual panels or as grouped wall cores
- Creation of sections in walls for strength evaluation can be done either automatically or manually by the user
- Selection of actual reinforcing bars, including true locations within walls, based on user-specified reinforcing templates and criteria
- Special seismic requirements of ACI 318 are implemented

Output and Drawings
- Base plan and column schedule DXF output
- Detailed and concise summary design output
- Reinforcing and material takeoff reports
- Floor plan and beam schedule DXF output including grouping

Complete 3D Model for Analysis and Design

The Intermediate and Special moment frame requirements of ACI 318, Chapter 21 are implemented in RAM Concrete.