ProConcrete

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ProConcrete

- 3D CAD Software for Concrete and Reinforcement
What is ProConcrete

- AutoCAD Application
- MicroStation V8i version will be available early 2009
- ProConcrete models, details and quantifies all materials and elements used in either Precast, Insitu and Masonry Concrete construction
- ProConcrete is based on ProSteel
Who can use ProConcrete

• Can be used by
  – Consulting Engineers
  – Structural Draftspeople
  – Concrete Detailers
  – Reinforcing Steel Detailers
  – Manufacturers of Concrete products & elements
What does it do

- Model Concrete and Reinforcement bars
- Place fixtures and inserts
- Extract Concrete Volumes and Rebar information
- Produce Concrete Element and Bar Bending Schedules from databases
Why use ProConcrete

• Fast Modelling of Concrete Elements
• Fast Modelling of Reinforcing Steel in either 2D or 3D, reduce time to produce plans and elevations
• Complete verification of Reinforcement Geometry, eliminate mistakes and design flaws
• Automatic Bar Bending Schedules and BOM derived from 3D Model, reduce large amounts of time when compared to current methods used
• Integration with other disciplines – Arch, Steel, Plant & Process, HVAC and Services
Confirms to Standards

ProConcrete is standards based. All bar bending, laps, development length … values are based on the following codes:

- Australian/New Zealand
- EuroCode
- British
- North American
• Database driven and easy to edit tables using Microsoft Excel or Access

• More templates and drawing standards will be provided once the integration of Bentley REBAR comes through in beginning 2009
Types of Structures

• Buildings
  – Commercial
  – Industrial
  – Stadiums

• Civil
  – Retaining Walls
  – Culverts

• Bridging
Intelligent Objects and Systems

- Foundations
- Piles, Pile Caps, Ground Beams
- Slab on Grade
- Stairs
- Suspended Floors
  - Insitu Monolithic
  - Precast
  - Composite
- Columns
Fully Parametric Beams & Columns

- 3D Parametric
- Standard Profiles
- User Defined Profiles
- Multiple Cages in Elements
- Multiple Hinge Zones for Beams
- Styles driven
User Shapes

User Shapes allow any polyline to be used

- Use in complex non regular beam and column geometry
- Bridge Beams
- Spanderal panels, Detailed walls, precast floor systems ...
Precast Panel Generator

• Models Precast Panel systems quickly
• Interacts with Footings
• Inserts – Lifting and Cast-in components
Fully integrated with ProSteel - ProStructures

- Both Applications will run in the same session
- Allows tight integration of design in both Structural Steel and Concrete mediums
- Accurate Collision detection of all Objects and Elements
ProStructures – Standard of Interoperability

• True multi-material 3D modeling and detailing environment integrated to both ACAD and MicroStation platforms

• Truly bi-directional integration of engineering AND detailed drawings

• Completely integrated with Bentley’s Analysis and Design packages including STAAD.Pro keeping physical, analytical and documentation models in sync
Workframe

The ProConcrete Workframe allows Beams, Columns, Slabs, Walls, and Foundations to be linked to the building grid.
Location Center

Location Center is an easy to use navigation tool that controls view direction and UCS.
Display Modes

Easy Control of Display Modes to speed processing and visualise better

- Line Mode
- Cylinder Mode
- Sketch Mode
Easy Editing in 3D

- Flexible End Conditions
  - Hook
  - Bend
  - Projection
  - Crank
  - User Angle

- Individual Rebar editing for each end condition without exploding cage

- Alter any Rebar with Ease
Collision Detection

Easy to use collision detection of:

- Concrete to Concrete Elements
- Concrete to Steel Elements
- Rebar to Rebar Elements
- Rebar to Steel Elements i.e. Cast Plates...
Rebar Collision Solver

Easy to use tool solving collision of rebar's in all joints

- Makes intelligent decisions on rebar arrangement
- Styles Driven
2D Detail Drawings

• Dynamically Linked to Model
• Style Based
• Plan, Elevations, Cross Sections and Element Views
• Material Lists

Model View Office11_Elevation Grid Y 1 (M1:50)
Bar Bending Schedules

- Standards Driven Type Table, i.e. BS8666
- Dimensioned Diagram Drawing Based Method
Concrete Model Interoperability

- **Bentley Structural**
  - Drawing Production (possible end point)

- **RAM Modeler/STAAD.Pro**
  - Analysis and outline design

- **RAM Concrete/RC Designer**
  - Detailed Concrete Beam/Column Design

- **STAAD.Offshore**
  - Wave Loading

- **RAM Foundation/STAAD.foundation**
  - Foundation Design

- **RAM Concept**
  - Detailed Concrete RC and PT Slab design

- **ProConcrete**
  - Reinforced Concrete Detailing (possible end point)
An Example of Interoperability of Concrete Building Structures with RAM*

Update the optimized model

Design beams & columns

Design RC/PT slabs

Send geometry and rebar info to ProConcrete

… interoperability with RSS, RAM

Concrete

Send geometry and rebar info to ProConcrete

*Data exchange through ISM
Thank you