

# Bentley Raceway and Cable Management

Conquer Complexity with Unified Design

Designing complex raceway and cable systems used to require multiple software applications to handle the wide range of design and documentation tasks typically involved. Bentley Raceway and Cable Management provides complete layout, routing, and material estimating functions in a single, integrated system. It creates the framework for an effective workflow spanning all phases of the design, from initial concept to detailed layout and construction.

## CONCEPTUAL DESIGN FACILITATES EARLY PROJECT PLANNING

Bentley Raceway and Cable Management features a conceptual design mode for a project's early stages. Users can define equipment nodes in the facility, assign equipment tags to the nodes, and define the required raceway routes to connect them. Automatic raceway sizing takes into account the number and type of cables routed between each equipment node. Users can generate bills of quantity for placing early orders and provide material and space estimates to other disciplines collaborating on the overall facility design. As additional information becomes available, it is easy to update the conceptual design.

## DETAILED DESIGN MODE FOR ACCURATE 3D LAYOUTS

The detailed design mode allows the user to create an accurate 3D model of the raceway system, duct bank, and cable trench underground systems. Intelligent drawing functions allow raceway configurations to be placed and manipulated quickly and easily. With multirouting, users can place multiple parallel raceways of different types, sizes, and attributes simultaneously. The raceway display can also be filtered by categories such as voltage level, making it easier to visualize complex installations. Users can also place and configure electrical equipment, including the layout of equipment inside each cabinet. This facilitates accurate cable length calculation and connection information. The 3D model makes it easy to ensure that adequate space and clearances are available, preventing costly construction delays. Users can automatically extract 2D construction deliverables of the detailed design. Electrical equipment placed in OpenPlant<sup>®</sup> Modeler can be imported into Bentley Raceway and Cable Management using iModels. The xDCS change management tool will report any differences between the imported iModel<sup>®</sup> and information already existing in the project database, making change management transparent and easy.

## AUTOMATIC CABLE ROUTING FUNCTIONS SAVE TIME

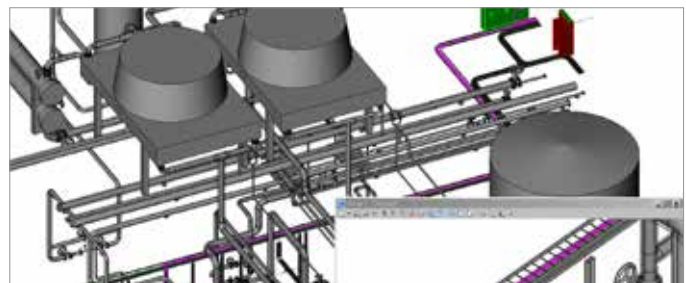
As cables are defined between two equipment nodes, the software can automatically determine the best route through the existing raceways while using different segregation criteria and defined cable routing methods. This routing takes into account not only distance, but also the types of cables that are permitted in each raceway and the available capacity and weight that can be carried by the raceways. Users can quickly determine when the size or number of raceways need to be adjusted. Different cable laying methods can be used for different raceways, including single layer, multilayer, specific number of layers, and triangular. The software ensures the number of cables placed in a conduit does not exceed the maximum fill factors defined in the National Electric Code.

## AUTOMATIC REPORT GENERATION HELPS KEEP PROJECT ON SCHEDULE

At any point in the conceptual or detailed design process, users can automatically generate output including bills of quantity, raceway schedules, cable schedules, and cable pull cards. The ability to quickly generate accurate material estimates is vital for placing orders in a timely manner to keep the project on schedule.

## INTEGRATION WITH OTHER BENTLEY PRODUCTS ALLOWS FOR COLLABORATION AND EFFECTIVE USE OF DESIGN DATA

Bentley Raceway and Cable Management can exchange data with other Bentley products to eliminate data re-entry. Equipment placed in OpenPlant can be imported into Bentley Raceway and Cable Management.



The 3D modeling software allows manual and automatic cable routing based on user-definable constraints.

## SYSTEM REQUIREMENTS

[Click here for the latest system requirements](#)

# Bentley Raceway and Cable Management At-A-Glance

## GENERAL/SYSTEM FEATURES

- ◆ Project-based workflow
- ◆ Project manager for global settings, and file management
- ◆ Collaboration manager (to control access)
- ◆ Configurable Excel import module for existing design data
- ◆ Concurrency control
- ◆ Client/server architecture
- ◆ Export to LumenRT
- ◆ Clash detection tool

## CONCEPTUAL DESIGN

- ◆ Work preparation: import cable lists, load lists, node map
- ◆ Build node model – place equipment nodes and routing nodes
- ◆ Routing – auto-connect nodes, refine cable routes
- ◆ Specification – size cables, analyze model, specify raceway material and accessories, specify space allocation
- ◆ Reports – cable pull cards, cable list, cable drums, bills of material
- ◆ 3D space allocation

## 3D DETAILED DESIGN

- ◆ Raceway – raceway modeling, raceway categories, dividers, raceway IDs, raceway accessories, fix air gaps for auto-routing
- ◆ Work preparation – import cable lists, load lists, node map
- ◆ Model 3D equipment (junction boxes and cabinets)
- ◆ Routing – manual and automatic
- ◆ Reports – cable pull cards, cable list, cable drums, bills of material
- ◆ 2D extraction – 2D drawings, cross section details and annotation, parallel section details and annotation
- ◆ Duct bank design editing and reporting tools
- ◆ Manhole placement editing tools
- ◆ Cable trench design, editing, and reporting tools
- ◆ 3D visualization of existing cables inside raceway systems

## RACEWAY FUNCTIONS

- ◆ Parametric raceway engine
- ◆ Interactive raceway routing
- ◆ Automatically connect conduits from raceway to equipment
- ◆ Raceway generator
- ◆ Raceway ID tools
- ◆ Raceway modification tools (insert, cut, extend, edit properties)
- ◆ Simultaneous placement of multiple raceway types and sizes
- ◆ Reuse of raceway configurations for team collaboration
- ◆ User interface for new raceway catalogs creation
- ◆ Ability to edit and resize raceway easily
- ◆ Raceway support and reporting tool

## EQUIPMENT FUNCTIONS

- ◆ Place parametric equipment (panels)
- ◆ Place cell-based equipment (motors)
- ◆ Import equipment from Excel or iModels

## CABLE MANAGEMENT & ROUTING FUNCTIONS

- ◆ Cable manager
- ◆ Cable definition via direct input or XLS import
- ◆ AutoRouter (automatic routing)
- ◆ Indication if selected autoroute is the shortest possible route to streamline review
- ◆ Cable routing by category
- ◆ Cable routing – constraint driven
- ◆ Cable filtering capabilities based on different cable and equipment attributes
- ◆ Manual cable routing
- ◆ Tray divider support
- ◆ Cable length calculation
- ◆ Cable sizing by length and load
- ◆ Cable fill and weight calculations
- ◆ Color-coded raceway fill factor indicators

## REPORTS AND OTHER OUTPUT

- ◆ Bills of material
- ◆ 2D extractions – sections with dynamic details
- ◆ Cable lists
- ◆ Cable pull cards
- ◆ Cable schedule report
- ◆ Cable drums
- ◆ Raceway schedule report
- ◆ Cable status list
- ◆ Raceway fill with cables report
- ◆ Raceway labels
- ◆ IFC export via iTwin® Services

## DESIGN CONTENT

- ◆ Cable libraries by manufacturers
- ◆ Conduit libraries – trade sizes and manufacturers
- ◆ Cell-based equipment from Components Center
- ◆ Tray, ladder, and basket libraries