Bentley Raceway and Cable Management™

Overcome 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's detailed design mode can be used to undertake conceptual design in a project's early stages. You can define equipment in the facility, assign equipment tags, and define the required raceway routes to connect them. Automatic cable routing tracks the number and type of cables routed between each equipment. 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 you to create an accurate 3D model of the raceway system, duct bank, and cable trench underground systems. Intelligent drawing functions help you place and manipulate raceway configurations quickly and easily. With multirouting, you 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. You can also place and configure electrical equipment, including the layout of equipment inside each cabinet, facilitating 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. Automatically extract 2D construction deliverables of the detailed design. Electrical equipment placed in OpenPlant® Modeler can be imported into Bentley Raceway and Cable Management using iTwin®. The xDCS change management feature will report any differences between the imported iTwin and information already existing in the project database, making change management transparent and easy.

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 accounts for 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. 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, you can automatically generate 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 applications to eliminate data re-entry. Equipment placed in OpenPlant can be imported into Bentley Raceway and Cable Management.
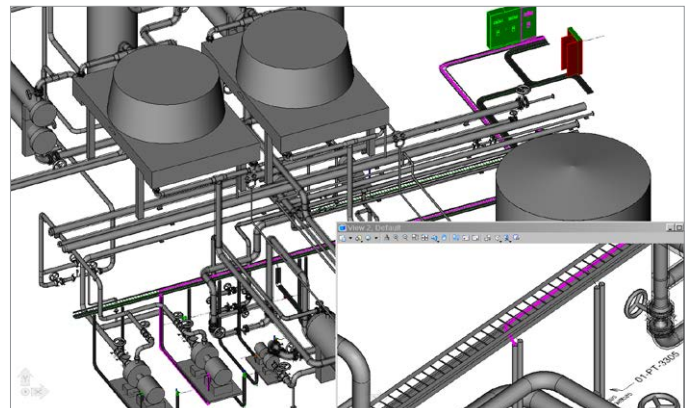
The 3D modeling software allows manual and automatic cable routing based on user-definable constraints.

Bentley Raceway and Cable Management At-a-glance

GENERAL/SYSTEM FEATURES

- Project-based workflow with iTwin or SQL Server database
- 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 Bentley LumenRT™
- Clash detection feature

CONCEPTUAL DESIGN

- Work preparation – import cable lists
- Build conceptual models – place equipment and raceway space allocation
- Routing – auto-connect equipment, refine cable routes
- Specification – analyze model, specify raceway material and accessories
- 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 capabilities
- Maintenance hole placement editing features
- Cable trench design, editing, and reporting features
- 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 feature
- Raceway modification options (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 feature

EQUIPMENT FUNCTIONS

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

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

DESIGN CONTENT

- Library of various cable types
- Conduit libraries – trade sizes and manufacturers
- Tray, ladder, and basket libraries
- Equipment library – cell based and parametric