

Bentley®
Advancing Infrastructure

CONNECT Edition



Image courtesy of Dubai Roads and Transit Authority

OpenBuildings™ Station Designer

Multidiscipline BIM Application for Railway Station Design and Simulation

Developed with Design-component Catalog and GC Templates

OpenBuildings Station Designer is a multidiscipline BIM application for railway station design and simulation. The application includes a work set with functional space definitions and a catalog of design components. In addition, OpenBuildings Station Designer includes several GenerativeComponents® templates for complex geometry, such as tunnels and platforms. With OpenBuildings Station Designer, you can improve team collaboration and work alongside OpenRail™ Designer and OpenRoads™ Designer through geographic coordinate systems, combining the linear alignment of rail or road design and the vertical construction of the station building. OpenBuildings Station Designer allows you to create simulation scenarios by defining spaces, activities, passenger characteristics, and operational information—such as train timetables—to be used as input to LEGION® Simulator, Bentley's software for simulating and analyzing foot traffic.

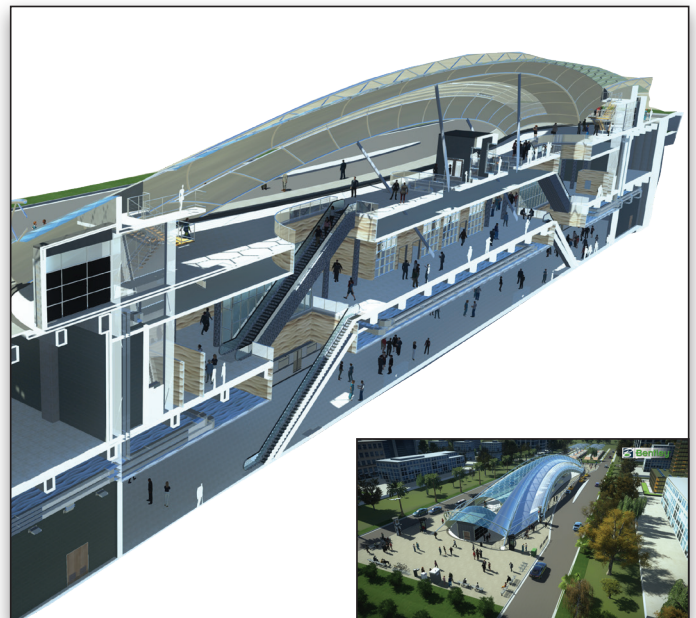
The CONNECT Edition

The SELECT® CONNECT Edition includes SELECT CONNECT.services, new Azure-based services that provide comprehensive **learning, mobility, and collaboration** benefits to every Bentley application subscriber. *Adaptive Learning Services* helps users master use of Bentley applications through CONNECT Advisor, a new in-application service that provides contextual and personalized learning. *Personal Mobility Services* provides unlimited access to Bentley apps, ensuring users have access to the right project information when and where they need it. *ProjectWise® Connection Services* allow users to securely share application and project information, to manage and resolve issues, and to create, send, and receive transmittals, submittals, and RFIs.

Configurable to Your Project Workflows

OpenBuildings Station Designer is configurable to your existing project delivery workflows, which ensures that you can meet client contract deliverable requirements. The application provides you with the necessary workflows, toolsets, and flexibility to address real-life design scenarios on all types of railway stations, including high-speed, commuter, metro, and light rail. Using OpenBuildings Station Designer, you can efficiently explore design alternatives by embedding design intent with expressions and constraint-driven geometry.

This approach minimizes repetitive modeling work and improves quality so that your multidiscipline team can evaluate more design alternatives. Built-in visualization allows you to evaluate materials and communicate the design to



Multidiscipline BIM station design.

project stakeholders with renderings and movies. Using ProjectWise, along with industry information exchange standards, enables collaboration and data sharing across all disciplines.

Developed with Your Business Needs in Mind

OpenBuildings Station Designer is a single application that handles a wide variety of complex design tasks with capabilities for architectural, structural, mechanical, electrical, and pedestrian modeling disciplines. The available companion features, including Descartes, and companion applications, such as LumenRT and OpenSite® Designer, deliver a collection of functionalities to work on various project types. These capabilities help to reduce the costs of application deployment, learning, and administration.

OpenBuildings Station Designer allows you to collaborate efficiently in a project environment with a dataset that distributes a shared library of building components and production standards. With Bentley's federated data approach, you can work on and share models and drawings across geographically distributed teams while retaining discipline and responsibility.

“Innovative designs need innovative applications. Bentley applications have allowed the multidiscipline team to work on a single platform and create iconic designs.”

*– Upendar Rao Kollu,
Managing Director,
Voyants Solutions*

Find out about Bentley at: www.bentley.com

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OpenBuildings Station Designer At-A-Glance

All Disciplines

- Start designing in 3D to explore ideas with free-form modeling
- Design in context with referenced reality models and point clouds
- Perform in-product clash detection
- Produce lifelike renderings and movies
- Apply company and project standards to models and drawings
- Exchange data in common formats (i.e. IFC, COBie, RealDWG™, Revit Family RFA, and Sketchup SKP)
- Incorporate project documents, media, web links, and more with hypermodeling
- Easily manage data with bidirectional editing in Microsoft Excel
- Share project information with iModels
- Enforce production standards within a ProjectWise managed environment
- Accelerate skillset with access to personalized learning
- Automate coordinated drawings by controlling drafting styles and annotations

Architectural

- Accelerate station design with a workset of functional space definitions, design components, and several GenerativeComponents templates for the design of tunnel and platform geometry
- Manage floor definitions for reference planes and floor groups
- Define custom grid systems
- Manage spaces to ensure compliance with owner's requirements
- Model custom design stairs and handrails
- Interactively design configurations of curtain walls

Structural

- Model steel, concrete, and timber structures
- Model steel trusses, bar joists, handrail, and ladder assemblies
- Reference a comprehensive library of international steel and concrete shapes
- Produce quantity reports and volume and weight analyses
- Share structural models and analysis using Bentley's Integrated Structural Modeling (ISM) technology
- Exchange data with detailing applications using industry standards (i.e. CIS/2, and SDNF)

Mechanical

- Parametrically model HVAC, piping, and plumbing systems
- Define components, paths, and angles to be modeled automatically when completing connections in HVAC and piping systems
- Dynamically route pipe systems with slope applied or apply as a post process
- Create and configure air handling units using standard modules
- Size ductwork based on air flow, velocity, and friction rate
- Export designs to Trimble's FabShop for fabrication

Electrical

- Streamline lighting design using smart symbol arrangement tools that are aligned with ceiling grid and wall-mounted components

- Design electrical circuits and associate with lighting, power, or fire protection panels
- Automatically label components with user-definable labeling formats for switch designation, circuit numbers, and device IDs
- Model cable trays, baskets, conduits, and wireways
- Evaluate lighting level with a bidirectional interface with Relux lighting analysis
- Produce drawings and block diagrams, lighting, cable, and panel schedules based on user-definable templates

Computational Design

- Define objects, assembly relationships, and dimensional constraints to capture design intent to explore a broad range of what-if scenarios
- Use visual programming techniques to create design solutions, manage dependencies, and orchestrate behaviors between design objects
- Use mathematical statements to control geometry and define dependencies between design objects
- Create reusable geometric assemblies extending the range of geometry with embedded intelligent behaviors
- Define input controls (i.e. sliders and law curves) to dynamically manipulate design components and propagate change within the design
- Play forward and reverse the design script incrementally to visualize the design intent and behaviors of the design relationships

Energy Services

- Perform whole building energy analysis with analytical space models and conceptual mass models using industry-standard EnergyPlus
- Calculate design and satisfy building regulation requirements using industry-standard building load calculations (i.e. CIBSE Maxi Gain)
- Reference a catalog of predefined standard HVAC system templates
- Calculate daylight factors using industry-standard Radiance engine
- Model surrounding buildings to simulate the effect of their shade on the design
- Create reports and charts for all aspects of building simulation including heating and cooling loads, LEED compliance, annual energy use, equipment sizing requirements, and CO₂ emissions

Pedestrian Modeling

- Import architectural drawings (CAD) to define the physical spaces available for use by pedestrians
- Specify the pedestrian demand anticipated for a space
- Designate areas where interim activities, such as queuing or waiting, occur
- Link operational data to the model
- Plan routes and automatically lay out navigation maps
- Export model files for simulation and analysis in LEGION Simulator



Voyants implements collaborative digital workflow to design iconic station for Indian Railways.

For additional information, and to read about the extraordinary projects designed using OpenBuildings Station Designer, visit <https://www.bentley.com/openbuildings-station-designer/>

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