![Bentley® Advancing Infrastructure]

CONNECT Edition

Image courtesy of Sichuan Provincial Architectural Design and Research Institute

OpenBuildings™ Designer
Design in Reality Context

OpenBuildings Designer is a multidiscipline building design application that enables BIM workflows to provide information-rich models for the design, analysis, simulation, and documentation of buildings. It incorporates OpenBuildings Designer computational design and energy services for building performance evaluation. OpenBuildings Designer immerses you in a 3D modeling environment and provides site content by referencing reality models. The application shares a catalog of design components across the project team. Built-in clash detection allows designers to coordinate building systems. The federated data approach to modeling and drawing management allows users to work on any size models simultaneously across distributed geographies.

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 Designer is configurable to your existing project delivery workflows, which ensures that you can meet client contract deliverable requirements. Using ProjectWise along with industry information exchange standards enables collaboration and data sharing across all disciplines.

The application provides you with the necessary workflows, toolsets, and flexibility to address real-life design scenarios on all types of building and infrastructure projects including commercial, industrial, transportation, educational, governmental buildings and nontraditional buildings such as bridges and tunnels.
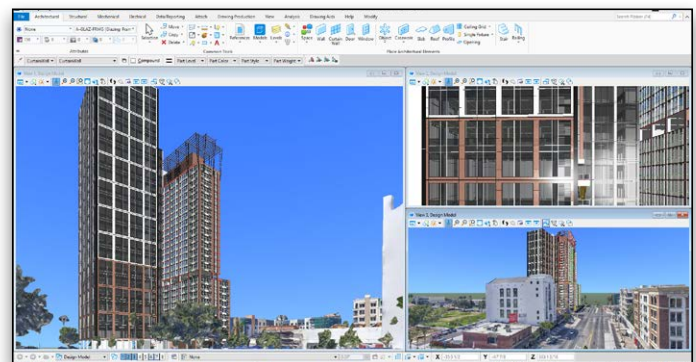
Design in context with reality models.

Using OpenBuildings Designer computational design, design alternatives can be efficiently explored embedding design intent with expressions and constraint-driven geometry. This approach minimizes repetitive modeling work and improves the design quality by allowing engineers and architects to evaluate more design alternatives. Integrated with energy services, you can analyze the performance impact of your design alternatives. Built-in visualization allows you to evaluate materials and communicate the design to project stakeholders with renderings and movies.

Developed with Your Business Needs in Mind

OpenBuildings Designer is a single application that handles a wide variety of complex design tasks with tools for architectural, structural, mechanical, and electrical disciplines. The available companion features (i.e. Descartes) and companion applications (i.e. LumenRT and OpenSite® Designer) deliver a collection of functionalities to work on projects of all types. These capabilities help to reduce the costs of application deployment, learning, and administration.

The application 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. Using Bentley's connected data environment® (CDE) based on ProjectWise, users can accomplish multidiscipline design coordination, produce multidiscipline deliverables, and reuse information across the asset lifecycle from any open application. These capabilities allow you to employ the most qualified staff and optimize company resources.

OpenBuildings 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 design with a catalog of walls, doors, windows, and furniture
- 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 detailed steel structures, trusses, bar joists, handrail, and ladder assemblies with ProSteel elements
- Model concrete and timber structures
- 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

- Route multiple pipes simultaneously with different diameter, spacing, end type, insulation, and with manufacturer catalog
- 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 the design script forward and in reverse incrementally to visualize the design intent and behaviors of design relationships

Energy Simulation

- 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 calculation methods (i.e. ASHRAE, PartL, and CIBSE)
- 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 CO_2 emissions

Image courtesy of AG5 Architects

OpenBuildings Designer was used to design this multi-use residential tower.

Image courtesy of John Portman & Associates

OpenBuildings Designer was used on this mixed-use office and hotel with boutique retail.

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

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