

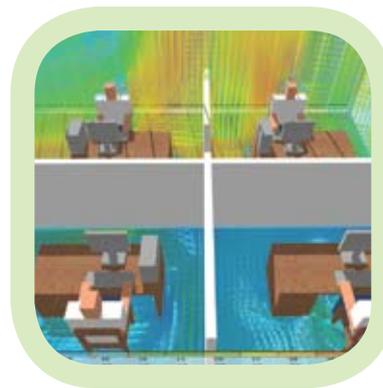


# BUILDING PERFORMANCE ANALYSIS SOFTWARE

Today's building designers need to balance many different criteria to provide high quality, comfortable buildings that also comply with building regulations, minimise upfront costs to the client, optimise on-going energy costs and reduce environmental impact

Optimal design solutions are not easy to find without sophisticated design tools which have, in the past, required a high degree of expertise to operate successfully. Now, by applying advances in user interface and simulation technology, DesignBuilder has created a true multi-discipline platform that can be used successfully by architects, engineers and simulation specialists.

Getting key design decisions right from the outset is vital in order to avoid costly iterations later. With DesignBuilder's help you can get it right first time every time within an intuitive modelling environment that is quick and easy to learn and use.



## TYPICAL DESIGNBUILDER APPLICATIONS:

### Design

- Comfort and overheating analysis
- Heating and cooling system design
- Evaluation of annual energy use and carbon emissions
- Daylighting effectiveness analysis
- Solar shading analysis and realistic visualisations

### Compliance and Ratings

- Energy Performance Certificates in UK and Ireland
- Part-L of UK and Ireland Building Regulations
- ASHRAE 90.1 compliance and LEED credit evaluation through export to EnergyPlus
- BREEAM rating credit evaluation



*Brookfield Towers  
Architects: Botti Rubin  
Energy Model: OTEC*





## VALUE FOR MONEY

DesignBuilder is the lowest cost advanced design simulation toolset on the market, created to ensure that you keep environmental analysis costs down in today's competitive market. Even more important, you will be up to speed with DesignBuilder much more quickly than other more difficult and less integrated packages. And when using the software for day-to-day analysis, whether building data is entered from scratch or from CAD data, you can be sure that your results will be completed with the minimum of time, effort and cost - even on large and complex buildings.

## UNPARALLELED PRODUCTIVITY

To understand why building designers and assessors are increasingly turning to DesignBuilder to help them with their projects, simply compare the time taken to enter building details in DesignBuilder against competing products. We guarantee you will be impressed.

## DAYLIGHTING

It is important to understand the potential for daylighting in a building from the earliest possible stages of the design process. DesignBuilder helps by providing a range of lighting design data. For example, a linked daylighting and thermal simulation can evaluate the savings in electric lighting provided by various daylighting strategies. In addition, interior illuminance level contour plots, photo-realistic images and basic daylight factor data can be generated through a link with the advanced Radiance daylight simulation software.

## NATURAL VENTILATION & PASSIVE DESIGN

DesignBuilder provides all the tools needed for natural ventilation design. Window, vent and door opening regimes and associated control strategies are quick and easy to set up. And mixed-mode analysis can be included where air-conditioning and natural ventilation systems are controlled together, to avoid unnecessary chiller and fan use.

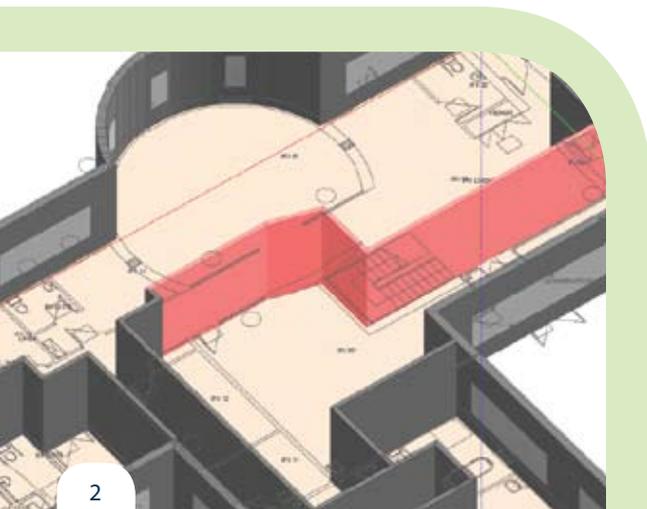
Airflow rates and surface temperatures calculated in a simulation can be fed into CFD (Computational Fluid Dynamics) for more detailed natural ventilation analysis, and the results presented in high quality graphic form. All types of solar shading can be modelled, including overhangs and other local shading, blinds and electrochromic shading. Various control options are also available, and it is possible to create shading devices of different shapes and include time-varying transmittance (e.g. trees). The effect of "green roofs" can be assessed, including the thermal cooling and insulation offered by this passive approach to roof design.

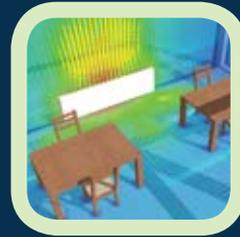


## COMFORT ANALYSIS

DesignBuilder can generate a wide range of comfort-related output through dynamic thermal simulation, including Fanger criteria PPD, PMV, hours over 28°C and hours of discomfort data.

For a more detailed insight, CFD analysis can be carried out for selected areas of the building, allowing thermal comfort to be calculated in different areas of a room, taking into account local surface temperatures and air velocities. The modelling process has been simplified without compromising accuracy, making it possible for even non-expert users to obtain reliable and professional-quality comfort results.





## ENERGYPLUS SIMULATIONS

DesignBuilder is acknowledged as the most comprehensive interface to the 'state of the art' EnergyPlus building simulator, and is used widely by simulation experts and beginners alike. EnergyPlus has been the subject of extensive validation through an ongoing US DOE development and support programme, which means you can be confident in the accuracy of the results. The software also provides access to an encyclopaedic range of advanced building modelling options when exporting the model from DesignBuilder to EnergyPlus for ASHRAE 90.1 compliance work and for evaluating LEED credits.

## HIGH-SPEED SIMULATION

DesignBuilder uniquely enables you to adjust the level of detail in both the model and the calculations. Our new proprietary high speed simulation engine DBSim is ideal for robustly modelling even large buildings. It is capable of generating a range of accurate simulation data in a fraction of the time normally required. This represents a major improvement in accuracy compared to the simplified calculation methods used in other architectural modelling software.

For more demanding design and assessment work, switching to the EnergyPlus calculation engine provides an impressive range of modelling options, including advanced natural ventilation, shading, lighting and HVAC analysis. Because the EnergyPlus and DBSim simulation methods are so closely integrated with the user interface, switching between them is as simple as flicking a switch. DesignBuilder therefore allows the whole design team to share, test and communicate ideas - from relatively non-technical architects through to services engineers and building energy simulation experts.

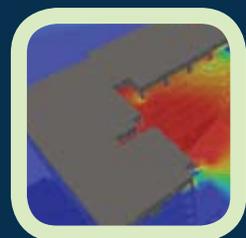
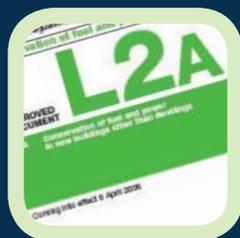
## COMPREHENSIVE DATABASES

DesignBuilder is supplied with a large database of common constructions, glazing systems, usage patterns, HVAC and lighting systems and ASHRAE international weather data. This enables you to quickly load meaningful data to your design without tedious repetition, and create your own new components and templates and add these to the database for future use.

DesignBuilder comes with 4500 international locations and design weather data sets, and over 2200 hourly weather data locations. For other locations not in the database, the Meteonorm\* weather data generator can be used.

In addition, DesignBuilder provides a uniquely powerful mechanism called "data inheritance" for making global changes to the building model. Defaults can be made for all or part of the building, simply by applying required changes at the appropriate position in the model.

\* Available separately





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*Architects: Botti Rubin / Energy Model: OTEC*

DesignBuilder is available in English, Spanish, French, German and Italian language versions through an international distribution network.

For more information visit  
[www.designbuilder.com](http://www.designbuilder.com)

**Enquiries**

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