

DesignBuilder used for MEES Assessment of London Heathrow World Business Centre



Introduction

The World Business Centre comprises two almost identical 6,273 m² office buildings constructed in 1996 and located on the perimeter of London Heathrow Airport. The client brief to Easy EPC was to certify both World Business Centre 1 and 2 buildings and recommend performance improvements where necessary for MEES compliance. This required a minimum EPC E-rating for MEES.



The curved facades and extensive Brise soleil were easily modelled in DesignBuilder

Approach and Analysis

The two buildings were surveyed in November 2017. Both buildings have a curved South-facing façade with extensive Brise soleil. They also each have a large atrium so were categorised as NOS Level 5 buildings and required the use of DSM software to model the effects of borrowed light from the atria to the adjacent spaces.



Internal atrium facing Heathrow airport

It quickly became apparent that the client had already taken active measures to improve the energy efficiency of the buildings, including fitting LED lighting in some areas and upgrading the boilers and chillers. As is often the case, some important information wasn't available including SFP's for the air handling units, lighting performance data and fabric insulation data. This meant that relevant inference and library data had to be used to fill in the gaps where data was missing. Fortunately DesignBuilder includes all of the NCM inference and library data so this made the modelling task much faster.

The survey revealed that the buildings had a substantial cooling load, partially reduced by the Brise soleil shading on the Southern facades and also shading from adjacent buildings. Those shading effects are modelled much accurately using DSM due to the use of hourly rather than monthly weather data in dynamic simulations. This can also improve daylighting results and reduce heating and cooling loads.

Results

As these are Level 5 buildings we had to model them using DesignBuilder's DSM software. Both buildings comfortably met the MEES EPC rating requirement using DSM. Out of interest we switched to DesignBuilder SBEM, made a few simple changes such as the shading inputs (SBEM and DSM use different shading definition methods) and re-ran the calculation. We found a large difference in the ratings, and when modelled using SBEM the buildings were not MEES compliant as they were just over the F-rating threshold. Whilst we clearly weren't able to use SBEM for these Level 5 building EPCs we have found in the past that simply switching from SBEM to DSM can be enough to achieve MEES compliance, as was confirmed in this case.

Conclusion

These reasonably large complex buildings were modelled quickly and easily using DesignBuilder, and especially helpful was the availability of library and inference data to fill in missing data.

MEES is presenting Easy EPC with another valuable revenue stream and has made us realise the importance of being able to use DSM for buildings that are struggling to comply. In many cases simply switching to DSM is enough to produce a compliant rating without the need for costly improvement measures. Our clients are always very happy about that!

We lodge 8,000 EPCs per year and model thousands of non-domestic buildings annually. Whilst we have used other SBEM and DSM software we firmly believe that DesignBuilder offers the best combination of capability, price and ease of use for energy assessors.

Upgrading to DSM for Level 4 assessors is straightforward and the costs of the software and additional training are relatively low. Given the benefits and advantages DesignBuilder DSM offers to assessors and their clients we would encourage assessors to look into it.

About Easy EPC



Easy EPC provide both domestic and commercial Energy Performance Certificates (EPC) to home owners and landlords as well as to renewables installers, letting agents, estate agents and solicitor's offices across the country. We have provided EPCs since they were first introduced in 2007, and were one of the first companies to be accredited to provide Green Deal Assessments.

We lodge over 8,000 EPCs per year so we know a thing or two about energy assessment and meeting the needs of EPC clients. Our rigorous monitoring processes and our commitment to our customers ensure that we always provide a high standard of service. We are always happy to provide both existing and potential customers with free and impartial advice on any aspect of EPC procedures.

If you would like to find out more please visit our [website contact page](#).