

## DesignBuilder DSM used to Certify and Help MEES Compliance for Manchester Offices



### Project Details

**Project description:** 9350 m<sup>2</sup> 9-storey office building

**Client requirements:** Assessment of EPC rating for exposure to MEES regulations.

**Location:** Manchester, UK

**Project status:** Existing building constructed in 1993

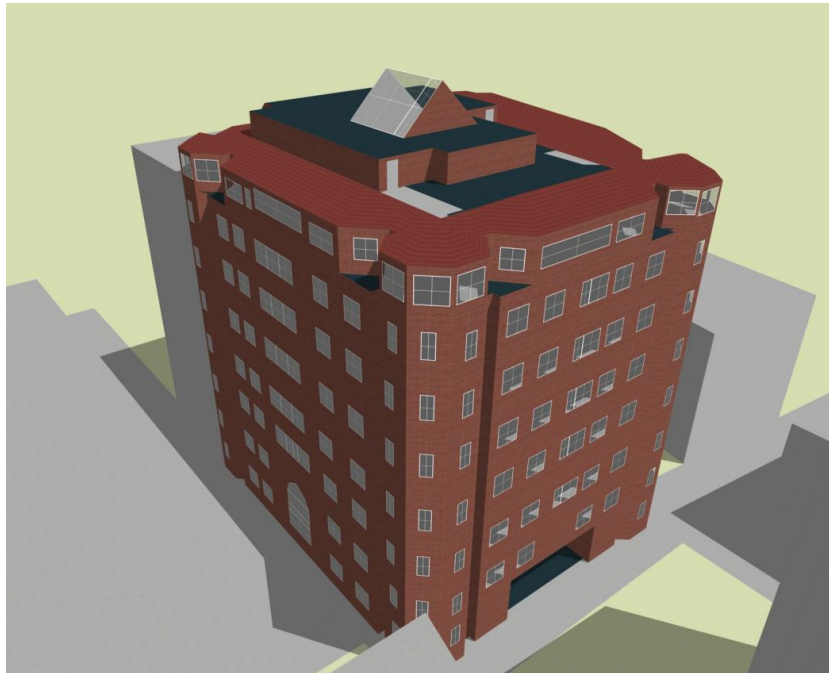
### Introduction

The client commissioned MEES Solutions to provide an EPC for their Level 5 building and help them identify any action required to comply with the new MEES legislation. Whilst this was a reasonably modern building it still needed modelling to confirm whether any improvement measures were required, and if so which would be the most cost-effective.

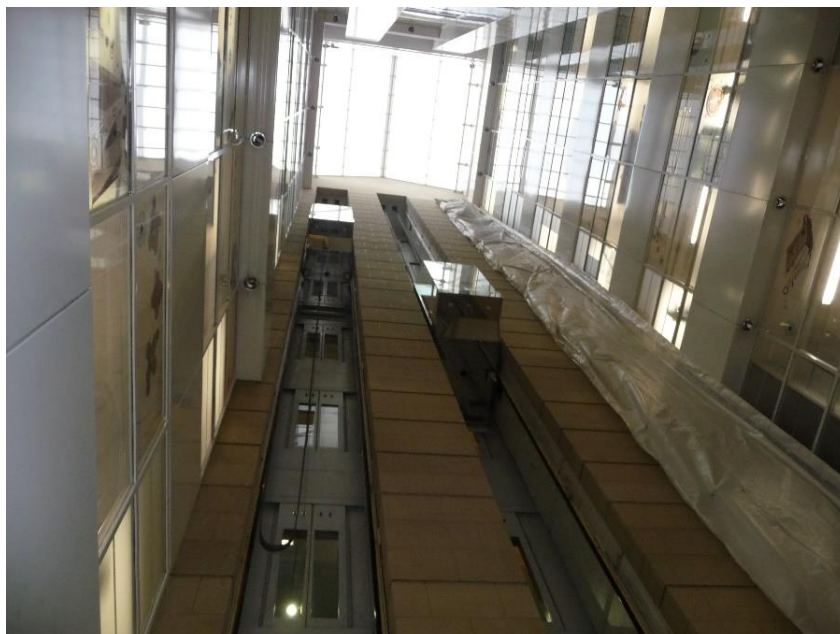
The building was fully occupied and some areas including the lift lobby and atrium were under refurbishment, so had to be modelled as they were on the day of the survey in terms of lighting and heating. The middle floors were repetitive in layout, so one representative floor was created and copied to speed up creation of the model within DesignBuilder.

## Approach and Analysis

The building geometry was modelled using a combination of client provided floor plans and on-site measurements. This enabled an accurate model of the building to be quickly developed.



**Shading and reflection from surrounding buildings incorporated in model**



**The internal atrium allowing light into the deep plan space**

The internal glazing within the atrium was included to allow for “borrowed light” through the atrium and into the offices, something that SBEM cannot model. The EnergyPlus daylighting option was selected to ensure this was accurately modelled, and this also allowed the extensive shading from the surrounding buildings to be taken into account.

The DSM method uses CIBSE hourly weather data. As SBEM uses only monthly average data the DSM calculation models solar radiation, light and shading much more accurately and typically produces a better EPC result. For cooling-dominated buildings like this, the ability to model shading and reflection from other buildings can be very beneficial.

Some design and commissioning data was obtained from the building O&M manuals on the constructions, glazing, lighting and HVAC systems. As is often the case with existing buildings, NCM defaults and the Non-Domestic EPC conventions were utilised where specific detail was missing. DesignBuilder makes filling in these blanks very quick and easy as it includes the full library of NCM and inference options with the relevant input data. The result was an EPC rating for the Landlord that was quick to produce and as accurate as possible given the level of detail available. Should the rating not have been MEES compliant more detail would have been sought, possibly through additional surveys of lighting and HVAC to provide more information.

## DSM can Help with MEES Compliance

Although this is not always the case, DSM will often produce a better EPC rating than SBEM. More accurate weather data and daylighting generally gives an advantage. In this case study the building had to be modelled in Level 5 DSM because of the atrium, but DSM is always an option whatever the characteristics of the building. For this building the rating was in the E band so no improvement measures were required, however, in many marginal properties DSM could be the difference between an E and an F, so as an option to offer the client it is a powerful tool.

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**Andrew Knapp is a director of both MEES Solutions and Coles Knapp.**

MEES Solutions offer portfolio analysis of Non-Domestic properties, including advice on existing EPC ratings, remodelling, compliance advice and risk exposure reporting for vendors and purchasers.

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Coles Knapp provide Non-Domestic EPCs, SBEM and DSM BRUKLs, thermal comfort reporting across the UK

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