

# Air Pressure Testing

## Case Study

Air pressure testing in buildings, commonly known as blower door testing, is a crucial method used to assess the airtightness of a building's envelope. This process involves measuring the air leakage rate, which helps determine how effectively a building is sealed from outside elements.

Conducted by using specialized equipment, the test creates a pressure differential between the inside and outside of the building to identify areas of unwanted air infiltration or exfiltration.

Air pressure testing plays a vital role in improving energy efficiency, ensuring indoor comfort, enhancing air quality, and complying with building codes and standards. By identifying weaknesses in the building's air barrier, it enables targeted improvements that can lead to lower energy consumption, reduced utility costs, and a more sustainable building overall.



## EPC Conventions (Non-Domestic)

Where no air pressure test has been undertaken, the EPC assessor must use SBEM default figures, in line with EPC Conventions.

- Less than 10 m<sup>3</sup>/hr. m<sup>-2</sup> – only with an accredited air pressure test result
- 10 m<sup>3</sup>/hr. m<sup>-2</sup> – buildings > 500 m<sup>2</sup> built to 2002 Building Regulations (or later)
- 15 m<sup>3</sup>/hr. m<sup>-2</sup> – buildings <= 500 m<sup>2</sup> built to 2002 Building Regulations (or later)
- 15 m<sup>3</sup>/hr. m<sup>-2</sup> – Buildings built to 1995 Building Regulations
- 25 m<sup>3</sup>/hr. m<sup>-2</sup> – buildings built to Building Regulations pre-1995
- 35 m<sup>3</sup>/hr. m<sup>-2</sup> – to be considered where suitable evidence of high permeability exists



It is therefore imperative that air testing is carried out, to ensure:

- Accurate air permeability of the building
- A test to identify and treat any infiltration risks within the building
- Improve the EPC

## Example Building

Office plate. 345m<sup>2</sup> Built to 1985 standards. SBEM default figures of 25m<sup>3</sup> was adopted in the default example. Air testing was carried out to determine the actual figure of 10m<sup>3</sup>. The results show that there was a significant improvement in the 'actual' building figures, when compared against the default number.

Over 7.97 tonnes of carbon dioxide and 12,547.47kWh of energy is being added to the building's asset rating, due to lack of information. Moreso, there is an 18 point EPC difference.

LP Energy Associates therefore recommend that air testing is carried out, to provide an accurate energy model and resultant asset rating.

	Default Air Test	Recorded at 10m <sup>3</sup>	Difference	
EPC Rating	<b>D 95</b>	<b>C 75</b>	<b>18</b>	
Area	345.47			m <sup>2</sup>
Carbon Intensity				
BER	43.37	35.4	<b>7.97</b>	KgCO <sub>2</sub> /m <sup>2</sup> .yr
Yearly CO <sub>2</sub>	14.98	12.23	<b>2.75</b>	TCO <sub>2</sub> .yr
Energy Intensity				
EUI	244	207.68	<b>36.32</b>	kWh/m <sup>2</sup> .yr
Total	84,294.68	71,747.21	<b>12,547.47</b>	kWh/yr

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