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Environment

Halls of shame: biggest CO2 offenders unveiled

- 18,000 public buildings in energy efficiency tests
- Even new premises fare badly under emissions law

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The Imperial War Museum North in Salford, which opened in 2002, was given a G, the lowest score - the same as its 91-year-old sister museum in London. Photograph: Don McPhee

The Palace of Westminster and the Bank of England have been exposed as among the country's least energy efficient public buildings by a new law to measure carbon dioxide emissions from the national estate.

Around 18,000 buildings, including town halls, museums, schools and job centres, are being tested to discover their energy efficiency on a sliding scale where A is the best and G is the worst. Parliament and the Bank both scored a G. Together, they consume enough electricity and gas to pump out 21,356 tonnes of CO2 a year, the equivalent of more than 14,000 people flying from London to New York.

New buildings also fared badly, raising questions about the validity of sustainability claims made by architects and developers. London's City Hall scored E despite opening in 2002 and being described by its architect Foster & Partners as a "virtually non-polluting public building". The Treasury's headquarters on Horse Guards Parade scored the same despite a complete office refurbishment six years ago that was supposed to "set new environmental standards in Whitehall".

In Salford, the Imperial War Museum North, designed by Daniel Libeskind and opened in 2002, scored a G, the same as its 91-year-old sister museum in London.

The government estimates that almost a fifth of all carbon dioxide emissions in the UK are caused by non-residential buildings, and environmental campaigners said the findings mean the government must launch an urgent refurbishment programme to slash carbon emissions.

The Natural History Museum spends £1.4m a year on electricity and gas - a figure that is expected to double from this month as a result of rising world energy prices. One of the most energy hungry buildings in the country was the National Media Museum in Bradford, a 1960s structure, which scored a G. One in four of the 3,200 buildings assessed so far scored F or G, and the average was D. Only 22 buildings - under 1% - scored A.

"These results show our leaky and draughty public buildings should be a priority target for refurbishment," said Paul King, chief executive of the UK Green Buildings Council. "In a turbulent financial climate, lower energy bills will benefit the taxpayer for years to come. If we are to cut our carbon, save money and achieve energy security, our buildings have to be on the front line of this battle."

"We review 350 significant new build projects a year at design stage and we hear a lot of greenwash," said Matt Bell, director of public affairs at the Commission for Architecture and the Built Environment, the government's architecture watchdog. "The knowledge that from now on this performance will be objectively measured should mark the end of that."

The findings emerged yesterday as it became law for any public building larger than 1,000 square metres to show a display energy certificate (DEC). The system is similar to the colour coded labels which show carbon emissions caused by refrigerators and cars. On that basis, the Bank and parliament are the building equivalent of a petrol-hungry Land Rover Discovery.

No 10 Downing Street managed a D rating, which is better than average for its building type. But the prime minister's heating, lighting and air conditioning still create 675 tonnes of CO2 a year, a bigger carbon footprint than a street of 28 families of four living in semi detached homes, each driving 10,000 miles a year and flying to Spain on an annual holiday.

The findings are likely to embarrass the government, which has pledged to make all new public buildings zero carbon by 2018. The Department for the Environment's head office recorded an E.

Forty-three per cent of 374 jobcentres scored E or lower. Eland House, the 10-year-old head office of the Department for Communities and Local Government, which has overseen the DEC system, scored an F.

Building occupiers can be fined up to £1,500 if they fail to display the certificate and report on how efficiency might

be improved. The Welsh Assembly, built to supposedly environmentally friendly designs by the architect Lord Rogers, is one of many occupiers which could face the fine after they missed the deadline and failed to put certificates up.

Buildings that performed well included a Jobcentre Plus office in Goole on Humberside, which received a B after lighting movement sensors were installed, a policy of turning off all computer monitors at night was introduced and timers were fitted to heating boilers.

"There are cheap measures which can be carried out to reduce most energy bills in these kinds of buildings by 20% quite quickly," said Jacqueline Balian, director of information for the Chartered Institute of Building Services Engineers, whose members have carried out around two thirds of the DECs. "Common problems are chillers and boilers running at the same time and leaving boilers on all night. This system of DECs should make the management of energy used by buildings much more high profile."

Iain Wright, the housing minister, who is responsible for the certification programme, said: "Display energy certificates are a valuable tool in the fight against climate change."

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