

Pol02

Local air quality

Actions:

- i. Determine the pollution location of the site
- ii. Use an appliance and fuel type that meets the NO_x emission criteria according to the relevant pollution location

i. Pollution location

Firstly, the ambient/background pollution levels at the site location must be assessed and then categorised into either a **high or low pollution location**. Any developments where any portion of the site is within a local authority Air Quality Management Area (AQMA) are automatically considered to be in a **high pollution location**.

For sites not within an AQMA, to identify whether the site is in a low or high pollution location go to uk-air.defra.gov.uk/data/gis-mapping and select the following options:

- ‘Select data type’ as ‘Background’.
- ‘Select a layer to view’ as ‘NO_x(as NO₂) annual mean’.
- ‘Select a year’ as 2015.
- Use ‘Draw Area’ to draw a line around the site boundary for the development.
- Use the ‘Max’ value displayed for the 'Area Selected' to determine whether the site is in a low or high pollution area.
- Take a screenshot which shows the area of the development and the max value, and retain for audit purposes.
- ‘Select a layer to view’ as PM10.
- Take a screenshot which shows the area of the development and the max PM10 for the area and retain for audit purposes.

High pollution areas are determined by the following benchmarks:

- NO_x > 15 µg/m³ averaged over a year
- PM10 > 10 µg/m³ averaged over a year

ii. Maximum NO_x emissions

If all hot water and heating is supplied by **non-combustion systems** (e.g. all-electric schemes), then two credits are automatically achieved. If **combustion systems** are used, then the emission levels in the following tables should be used to determine the number of credits achieved. The pollution location type may further influence this.

Note: This document is intended as guidance only. Consult your BREEAM AP or Assessor to ensure compliance is achieved.

BREEAM uses the following units of measurement:

- NO_x measured in mg/kWh fuel input (Gross Calorific Value (GCV)) for gas or oil appliances
- Particulate matter and VOCs for all solid fuel or biomass boilers measured in mg/m³ 10% O₂ dry basis
- Particulate matter and VOCs for all solid fuel or biomass local heaters measured in mg/m³ 13% O₂ dry basis.

Appliance type and unit	Fuel	1 credit (low pollution location)	1 credit (high pollution location)	2 credits (low pollution location)	2 credits (high pollution location)
		Maximum NO _x emissions			
Boiler (mg/kWh)	Gas	27	27	24	24
Boiler (mg/kWh)	Oil	73	56	67	50
Boiler (mg/m ³)	Biomass and solid fossil fuel	130		70	
Cogeneration or heat pumps using external combustion (mg/kWh)	Gas	34	34	30	30
Cogeneration or heat pumps using external combustion (mg/kWh)	Oil	96	56	70	50
Cogeneration - using internal combustion engine (mg/kWh)	Gas	119			
Cogeneration - using internal combustion engine (mg/kWh)	Oil	140			
Local space heaters (mg/kWh)	Gas and oil	76			
Closed fronted local space heaters (mg/m ³)	Biomass, solid fuel and wood pellets	130			

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Appliance type and unit	Fuel	1 Credit (low pollution location)		1 Credit (high pollution location)		2 Credits (low pollution location)		2 Credits (high pollution location)	
		PM10	VOC	PM10	VOC	PM10	VOC	PM10	VOC
Boiler (mg/m ³)	Biomass	14	7	6	7	11	5	4	5
Boiler (mg/m ³)	Solid fossil fuel	19				17			
Closed face local space heater (mg/m ³)	Wood pellets	26	26	20	20	22	22	10	10
Closed face local space heater (mg/m ³)	Biomass and solid fuel	50	50			25	25		

PM10 = particulate matter < 10 micrometres and VOC = volatile organic compounds.

For the purposes of BREEAM, PM and VOC emissions are only relevant to the assessment of biomass and solid fuel fired technologies.

Is the building an extension?

If the heating or hot water demand for the new extension is being met by an existing system, then the emission levels for the **existing system** must be assessed against the criteria for this issue.

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