

## Housing Health and Safety Rating System (HHSRS)

## Case Studies

Group B  
Physiological  
Requirements

Hazard B13  
Indoor  
Air Pollutants

Example B13.3  
Pre-1920  
Basement Flat  
(HMO)

Vulnerable Group  
Persons of all ages

Multiple Locations  
Yes

Related Hazards  
No

# Dwelling

## Description

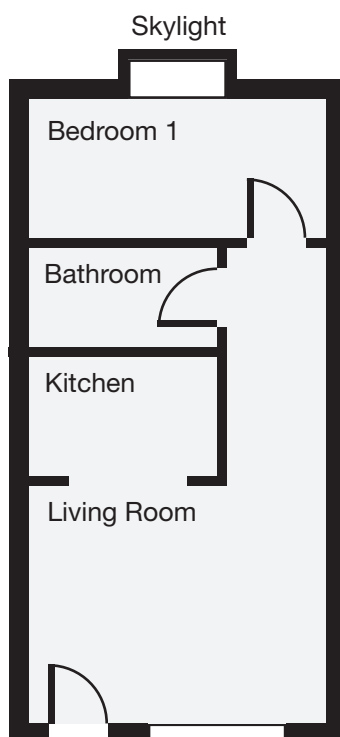
This dwelling is a pre-1919 basement flat, being part of a mid-terrace house fronting a busy inner-city arterial road. The flat is mainly below ground.

The property has solid brick walls and a slate roof. There is a skylight at pavement level that illuminates the bedroom. The bedroom is nearest the main road, and the skylight also serves as an escape window. The kitchen and shower room are in the middle of the flat. The shower room is ventilated to the outside air by an extractor fan. The living room faces the gated communal rear yard, which provides access for all the basement flats in the terrace, bin storage and the single route for access into the flat.

The original conversion to a self-contained flat was carried out without building regulations approval. There is a current gas safety certificate, a satisfactory electrical installation condition report, and a D-rated EPC. The flat is situated in a busy inner-city area with above-average crime rates. Windows left open are an invitation for burglary.



1  
Front exterior  
Photo credit: Abdul\_Shakoor / Shutterstock.com

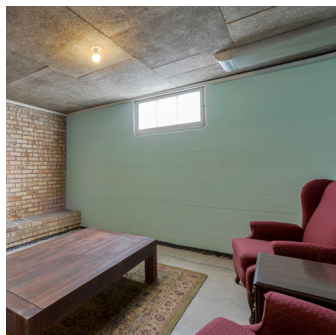


2  
Floorplan

# Deficiencies

## Description

There is a 4-ring gas hob and an electric oven in the kitchen. The cooker hood recycles the air rather than extracting it to the outside, so combustion products are emitted back into the flat. The gas boiler is in the living room and is vented to the outside air in close proximity to the window. There are trickle vents in the window in the living room but no opening panes. The entrance door in the living room is uPVC, with rubber draught-proofing seals. The skylight in the bedroom cannot be secured in an open position. There are smoke detectors but no carbon monoxide detector.



3  
Living room window  
Photo credit: Jonathan  
Park / Shutterstock.com



4  
Living room window  
viewed from outside



5  
Cooker hood not vented  
to the outside

# Relevant Baseline Indicators

0

Satisfactory  
or N/A

1

Not  
Satisfactory

2

Defective

3

Seriously  
Defective

Subject	Score	BI	Baseline Indicator
4	Sanitary Facilities: Bathroom	0 1 2 3	4.8 Ventilation for the bathroom must be provided by mechanical extraction that is ducted to the outside of the building, in line with Baseline Indicator 16.1.
5	Sanitary Facilities: Kitchen	0 1 2 3	5.4 For cooking food, a 4-ring hob (or 2-ring in bedsit-type accommodation) with oven and grill properly installed with all necessary connections for safe and efficient operation, which shall be maintained in good working condition.
		0 1 2 3	5.6 Suitable facilities for the effective and safe removal of fumes and moisture-laden air to the external air by means of a cooker hood or extractor fan; a cooker hood that only recycles the odour through an active carbon filter would not be acceptable, it must vent to outside. A mechanical extractor would be the normal mechanism for this function, in line with Baseline Indicator 16.1.
14	Lighting and Service	0 1 2 3	14.1 Every habitable room shall have adequate natural lighting.
		0 1 2 3	14.5 Gas appliances and flues provided for occupiers are safe for continued use.
16	Ventilation	0 1 2 3	16.1 The air exhausted from a bathroom, toilet room, kitchen, clothes dryer or basement must be provided by mechanical ventilation or by a correctly designed and installed natural ventilation system, as required by Part F of the Building Regulations. In addition it shall not be vented into any other parts of the building's habitable space or an attic; such air shall discharge directly to the outdoors but not near any intake on the building exterior.
		0 1 2 3	16.2 All habitable rooms must have at least one window, door or skylight which opens to the outside and can be fixed in an open position. In addition, ventilation may also be provided by the presence of trickle vents, air bricks or passive stack ventilation.
		0 1 2 3	16.3 In each habitable room, the size of the openable windows, doors and skylights together must be at least 5% of the floor area of that room.
		0 1 2 3	16.4 All means of ventilation shall be maintained in good repair and working order.

Relevant Baseline Indicators  
(continued)

0

Satisfactory  
or N/A

1

Not  
Satisfactory

2

Defective

3

Seriously  
Defective

Subject		Score				BI	Baseline Indicator
19	Fire Safety	0	1	2	3	19.3	An annual gas safety check should have been undertaken within the last 12 months with a satisfactory result. Any heating provided by LPG shall be inspected annually by a suitably qualified engineer.
		0	1	2	3	19.5	There should be sufficient, properly designed and appropriately sited smoke and heat detectors with alarms in every dwelling. These should be properly maintained and regularly tested.

# Other Relevant Matters

0

Satisfactory or N/A

1

Not Satisfactory

2

Defective

3

Seriously Defective

Score					Matters affecting Likelihood of Harm
0	1	2	3		Appliance siting
0	1	2	3		Detectors
0	1	2	3		Flueless appliances
0	1	2	3		Flue outlet siting
0	1	2	3		Extractor fans
0	1	2	3		Lobby ventilation
0	1	2	3		VOC emitting
0	1	2	3		Use of biocides
0	1	2	3		Dwelling location

Score					Matters affecting Harm Outcomes
0	1	2	3		Appliance siting
0	1	2	3		Detectors
0	1	2	3		Flueless appliances
0	1	2	3		Flue outlet siting
0	1	2	3		Extractor fans
0	1	2	3		Lobby ventilation
0	1	2	3		VOC emitting
0	1	2	3		Use of biocides
0	1	2	3		Dwelling location

# Likelihood of Harm

<b>Scale Points</b> Likelihood of harm from this hazard over the next twelve months	
Very Likely	1 in 1
	1 in 2
	1 in 3
	1 in 5
Likely	1 in 10
	1 in 20
	<b>Example Dwelling</b> 1 in 30
Unlikely	1 in 50
	1 in 100
	1 in 200
	1 in 300
Very Unlikely	1 in 500
	1 in 1,000
	<b>National Average</b> 1 in 2,000
	1 in 3,000
	1 in 5,000
<b>Score</b> 1 in 30	

**Justification of Scoring**  
Likelihood of Harm

The gas hob in the kitchen is located in the middle of the flat. The cooker hood recycles the air rather than extracting it to the outside, so combustion products remain in the flat. There is no CO detector to provide an early warning of carbon monoxide emissions.

The gas boiler is in the living room and is vented to the outside air. There is an up-to-date/current gas safety certificate. There are trickle vents in the window in the living room but no opening panes, and the entrance door has uPVC, with rubber draught-proofing seals. The skylight in the bedroom is not vented.

# Harm Outcomes

Extreme		Severe		Serious		Moderate	
Death, permanent paralysis, etc.		Heart attack, serious fractures, etc.		Chronic stress, severe concussion, etc.		Broken fingers, moderate cuts, etc.	
Very Likely	50.0	Very Likely	50.0	Very Likely	50.0	Example Dwelling	94.9
	30.0		30.0		30.0	National Average	94.9
	20.0		20.0		20.0	These scores are simply calculated as the sum of the other three harm outcomes subtracted from 100%	
Likely	10.0	Likely	10.0	Likely	10.0		
	5.0		5.0		Example Dwelling + National Average		5.0
	2.0		2.0		2.0		
Unlikely	1.0	Unlikely	1.0	Unlikely	1.0		
	0.5		0.5		0.5		
	0.2		0.2		0.2		
Very Unlikely	0.1	Example Dwelling + National Average	0.1	Very Unlikely	0.1		
Example Dwelling + National Average	0.0		0.0		0.0		
Score 0.0%		Score 0.1%		Score 5.0%		Score 94.9%	

Justification of Scoring  
Harm Outcomes

There is no reason to alter the harm outcomes

Safety Ratings

Scenario 1  
As described in this document

Key

Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Medium	1,000
	Low	100

Likelihood of Harm 1 in 30			
Extreme 0.0%	Severe 0.1%	Serious 5.0%	Moderate 94.9%
Category	Band	Score	
1 Legal duty to take action	High	10,000	
2 Discretion to take action	Medium	1,000	
	Low	100	85
Example Dwelling			
Score		National Average	1
85			

**Scenario 2**

After works meeting baseline indicators

Likelihood of Harm  
1 in 500

Extreme 0.0%	Severe 0.1%	Serious 5.0%	Moderate 94.9%
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Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Medium	1,000
	Low	100
<b>Score</b> <b>5</b>	<b>Example</b> National Average	<b>5</b> 1

**Scenario 3**

After further improvements

Likelihood of Harm  
1 in 2,000

Extreme 0.0%	Severe 0.1%	Serious 5.0%	Moderate 94.9%
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Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Medium	1,000
	Low	100
<b>Score</b> <b>1</b>	<b>Example</b> <b>Dwelling +</b> National Average	<b>1</b>

**Justification of Scoring**

After works meeting baseline indicators

The provision of extract ventilation from the kitchen to the outside air as well as openable windows in the living room will dramatically reduce any build-up of combustion products within the dwelling. The balanced flue for the gas boiler will have to be reconfigured so that it discharges well away from the opening windows that are to be provided in the living room, to ensure compliance with the gas safety regulations. A carbon monoxide detector is required in the kitchen.

The openable skylight in the bedroom should be changed for one that can be secured in an open position however, the below-ground-level bedroom remains located next to a busy road, therefore a residual risk from air pollutants is likely to be present due to lower levels of natural ventilation, even after compliance with the baseline indicators. Levels of air pollutants are likely to stay above the national average.

**Justification of Scoring**

After further improvements

The gas hob could be changed for an electric hob. Provision of a mechanical ventilation system for the bedroom and filtration to remove noxious exhaust gases will reduce the likelihood of an occurrence to that of the national average.

## Other Relevant Legislation and Guidance

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### Smoke and Carbon Monoxide Regulations

The Smoke and Carbon Monoxide Alarm (England) Regulations 2015 would not apply in this case as the property was owner/occupied at the time of assessment. If the property is rented again in the future, the Smoke and Carbon Monoxide Alarm (England) Regulations 2015 require landlords of non-licensable dwellings to fit a smoke alarm on each storey of their homes where there is a room used as living accommodation, and a carbon monoxide alarm in any room used as living accommodation which contains a fixed combustion appliance (excluding gas cookers). They must also ensure smoke alarms and carbon monoxide alarms are repaired or replaced once informed and found that they are faulty.

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### Updates

Matters for consideration listed in this section were correct at the time of publication. For the most up-to-date legislation and guidance in these areas, please visit the [gov.uk](https://www.gov.uk) website.