

Housing Health and Safety Rating System (HHSRS)

Case Studies

Group B
Physiological
Requirements

Hazard B14
Excess Heat

Example B14.2
Pre-1920
Second-floor
Attic Flat

Vulnerable Group
All persons aged
65 years and over

Multiple Locations
Yes

Related Hazard B9
Excess Cold

Related Hazard D20
Noise

Dwelling

Description

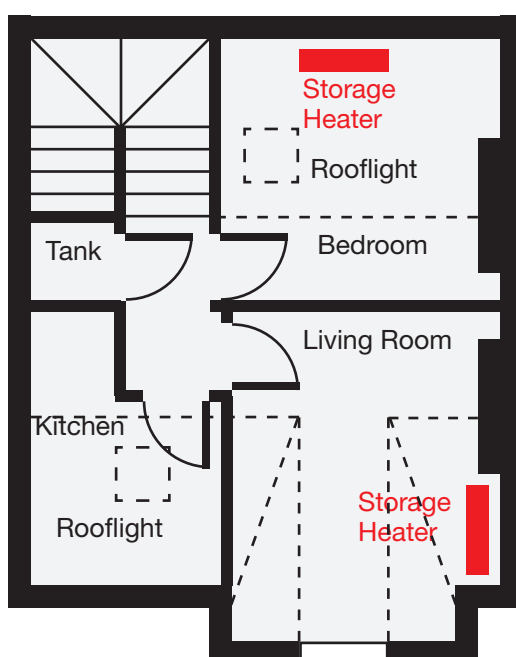
This property is an attic flat on the second floor of a three-storey mid-terrace house, built 1880–95. The property has solid brick walls under the original slate-covered roof. It was converted in the 1950s into four flats. The windows are single glazed.

The attic flat has a shower room and separate toilet room located on the second-floor landing. Both rooms have extract ventilation.

There is no gas in the flat, which is occupied by a single female (not of the vulnerable age group.)



1
Front exterior



2
Floorplan

Deficiencies

Description

Only the level, central portion of the roof space is insulated, having 100mm of compacted insulation. The sloping parts of the ceilings are not insulated, being constructed directly under the slate roof.

There is a small, south-facing opening roof-light window in the bedroom.

The kitchen is ventilated by an extractor fan that discharges into the roof void above. The north-facing living room has a full-height window with an opening casement. Heating is via electric storage heaters dating from the 1970s. There is no electrical installation condition report or EPC available.



3
Skylight to rear roof/
bedroom



4
Kitchen extractor



5
Extractor venting into roof
void

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	5.6
			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.
15	Heating and Insulation	0 1 2 3	15.1
			Structural thermal insulation shall be provided to minimise heat loss. Where there is a loft space, insulation shall be provided as detailed: A minimum 250mm of loft insulation (assumed to be mineral wool or similar).
		0 1 2 3	15.4
			Every dwelling shall have a properly installed heating system in good and safe working condition that is capable of safely and adequately heating all habitable rooms, bathrooms, and toilet rooms. The system must be capable of heating the main living area to 21°C, and the remaining habitable rooms to a temperature of 18°C when the external temperature is minus 1°C, and the system should not allow the temperature to exceed 25°C in any room during the heating season.
		0 1 2 3	15.5
			Heating and hot water should be capable of being controlled effectively and timed to operate by the occupiers.

Relevant Baseline Indicators
(continued)

0

Satisfactory
or N/A

1

Not
Satisfactory

2

Defective

3

Seriously
Defective

Subject	Score	BI	Baseline Indicator
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 2015 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.

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		Thermal insulation
0	1	2	3		Thermal mass
0	1	2	3		Glazing orientation
0	1	2	3		Cross-ventilation
0	1	2	3		External shading
0	1	2	3		Dwelling location

Score					Matters affecting Harm Outcomes
0	1	2	3		Thermal insulation
0	1	2	3		Thermal mass
0	1	2	3		Glazing orientation
0	1	2	3		Cross-ventilation
0	1	2	3		External shading
0	1	2	3		Dwelling location

Likelihood of Harm

Scale Points 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
	1 in 30
	1 in 50
Unlikely	1 in 100
	Example Dwelling 1 in 200
	1 in 300
	1 in 500
Very Unlikely	1 in 1,000
	1 in 2,000
	1 in 3,000
	National Average 1 in 5,000
Score 1 in 200	

Justification of Scoring
Likelihood of Harm

The attic flat is exposed to uncontrollable solar heat gain due to being south-facing. Elements such as the lack of effective roof insulation, the urban location, normal everyday activity and lack of heating system agility add to the heat within the flat; additionally, its layout makes cross-ventilation difficult to achieve.

The night storage heating is not responsive as the input must be organised in advance and output may well be necessary during cooler periods of the day. Outputs are difficult to manage consistently, and the inherent complexity of the system may present issues to the vulnerable group in particular. Heat may also rise from the flats below. In addition, factors such as noise and fear of falls from the large front window may mean full use of this for ventilation purposes is less practicable.

These factors could lead to unhealthy indoor temperatures during periods of high external temperatures. As heatwaves are also increasing in frequency, the possibility of this hazard occurring over a 12-month period is far more likely when compared to the national average.

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	30.0
Example Dwelling + National Average	30.0		30.0	Example Dwelling + National Average	30.0	National Average	30.0
	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	Example Dwelling + National Average	10.0	Likely	10.0		
	5.0		5.0		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	Very Unlikely	0.1	Very Unlikely	0.1		
	0.0		0.0		0.0		
Score		Score		Score		Score	
30.0%		10.0%		30.0%		30.0%	

Justification of Scoring

Harm Outcomes

There is no reason to believe the potential spread of harm outcomes will be any different from the national average.

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 200		
Extreme 30.0%	Severe 10.0%	Serious 30.0%
Moderate 30.0%		
Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Example Dwelling	1,597
	Medium	1,000
	Low	100
National Average		64

Score
1,597

Scenario 2

After works meeting baseline indicators

Likelihood of Harm
1 in 1,000

Extreme 30.0%	Severe 10.0%	Serious 30.0%	Moderate 30.0%
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Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Medium	1,000
Example Dwelling		319
	Low	100
National Average		64

Score
319

Scenario 3

After further improvements

Likelihood of Harm
1 in 5,000

Extreme 30.0%	Severe 10.0%	Serious 30.0%	Moderate 30.0%
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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
Example Dwelling + National Average		64

Score
64

Justification of Scoring

After works meeting baseline indicators

Proper ducting of the kitchen extract ventilation to the outside would be resolved by BIs 5.6 and 16.1. Compliance with BI 15.1 would see insulation fitted to the attic room. Insulating all of the roof will slow the heat transfer from the dark slate roof to the attic flat, reducing peak temperatures.

Compliance with BI 15.4 provides for a more efficient heating system with input sensors and thermostats to ensure that the system does not allow temperatures to exceed 25°C during the heating season. This will further address the high internal temperatures, overall resulting in a reduction in the likelihood of an occurrence.

Justification of Scoring

After further improvements

Insulation of the walls (either internally, or externally if the whole house is done) will increase its thermal mass and help the dwelling keep cooler in the evening during hot weather instead of radiating heat back into the dwelling.

Thermal glazing to the skylight and provision of an MVHR (mechanical ventilation heat recovery)/air-conditioning system to regulate the room temperatures would also be desirable.

These measures would reduce the property back to the national average score.

Other Relevant Legislation and Guidance

Leasehold Restrictions

In a leasehold property, there may be restrictions on works that can be carried out without the freeholder and management company's express approval. This could include, for example, alteration of doors and windows as well as maintenance of the structure of the building (e.g. the roof).

Energy Performance Regulations

The Energy Performance of Buildings Regulations 2012 requires an EPC to be produced when a property is placed for sale or rent (subject to tenancy type). Where a property is required to have an EPC, it is subject to the requirements of the Energy Efficiency (Private Rented Property)(England and Wales) Regulations 2015.

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.