

Housing Health and Safety Rating System (HHSRS)

Case Studies

Group B
Physiological
Requirements

Hazard B9
Excess Cold

Example B9.1
Pre-1920
Mid-terrace House
(Non-HMO)

Vulnerable Group
Persons aged
60 years and over

Multiple Locations
Yes

Related Hazards
No

Dwelling

Description

This is a two-storey, mid-terraced late-Victorian house with three bedrooms and a bathroom on the first floor, and an entrance hall and two reception rooms on the ground floor together with the kitchen, the latter being a single-storey, flat-roofed rear extension, built in cavity brick in the 1980s. The original rear wall of the house is 9-inch solid brick that has been rendered. The front wall of the house is 14-inch stone-facing with a brick inner leaf. The roof has concrete tiles underdrawn with sarking felt. The property is rented and its EPC is F rated.



1

Front exterior

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Shutterstock.com

Deficiencies

Description

There is fully operational but inefficient mains gas-fired central heating, supplied from a floor-mounted standard boiler, which is over 10 years old, situated in the kitchen. The system has a time clock and room thermostat with radiators in all rooms but no thermostatic radiator valves (TRVs). The hot water cylinder has an insulated jacket of approximately 40 mm thickness.

The windows are single-glazed wooden-framed sashes, apart from the uPVC double-glazed casement windows in the two reception rooms. The front and rear doors are wooden, single glazed and draughty. They are in reasonable condition and the only source of ventilation.

There is no loft insulation above the lath-and-plaster ceilings, no floor insulation and no cavity wall or flat roof insulation to the rear extension. There are gaps in the sarking felt where it has been torn or holed.

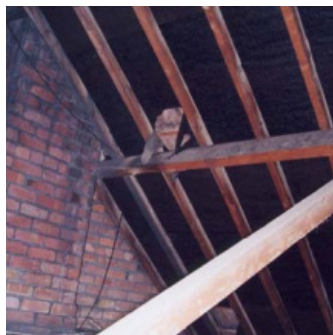
The EPC recommends the following works: loft insulation; flat roof and cavity wall insulation to the rear extension; and a replacement boiler and controls.



2
Floor-mounted
gas-fired boiler



3
Loft space lacking in
insulation



4
Torn sarking felt

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
11 Security	0 1 2 3	11.5	All door and window frames and furniture shall operate properly and be in a good state of repair, with no open joints or compromised seals between the windows/doors and adjacent walls.
14 Lighting and Services	0 1 2 3	14.4	All electrical installations, including fixtures and fittings must be maintained in good repair.
	0 1 2 3	14.5	Gas appliances and flues provided for occupants are safe for continued use.
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	15.2	Hot water cylinder, if present, must be insulated with a minimum 50mm jacket if not pre-insulated, and it must be fitted with a tank thermostat.
	0 1 2 3	15.3	If the walls are of cavity wall construction, they must be insulated unless professional examination confirms to do so is technically unfeasible, due to either their condition or location in terms of wind-driven rain, or the width of the cavity being less than 40 mm.
	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.

Relevant Baseline
Indicators

0

Satisfactory
or N/A

1

Not
Satisfactory

2

Defective

3

Seriously
Defective

Subject	Score	BI	Baseline Indicator
	0 1 2 3	15.5	Heating and hot water must be capable of being controlled effectively and timed to operate by the occupiers.
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	16.4	All means of ventilation shall be maintained in good repair and working order.
17 Moisture Control	0 1 2 3	17.1	Every foundation, roof, roofing component, exterior wall, floor, door, skylight and window shall be watertight, weathertight, free of persistent dampness or moisture and in good condition.

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	Insulation settling
0	1	2	3	Ventilation quantity
0	1	2	3	Ventilation control
0	1	2	3	Draughtproofing

Score				Matters affecting Harm Outcomes
0	1	2	3	Insulation settling
0	1	2	3	Ventilation quantity
0	1	2	3	Ventilation control
0	1	2	3	Draughtproofing

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	Example Dwelling	1 in 100
		1 in 200
		1 in 300
		1 in 500
Very Unlikely	National Average	1 in 1,000
		1 in 2,000
		1 in 3,000
		1 in 5,000

Score

1 in 100

Justification of Scoring

Likelihood of Harm

The fabric of the dwelling is thermally inefficient. This property has no flat roof insulation, no loft insulation and the sarking felt is holed and damaged. Given that up to 25% of heat is lost from a house through its roof, in this property, this will be a significant amount.

The old and draughty single-glazed windows and doors will further contribute to heat loss. Despite the thick walls, heat retention within the dwelling will be difficult, requiring the heating to be on for notably longer than a well-insulated building of comparable shape and size.

According to the 2019/20 English Housing Survey, 8% of dwellings built before 1919 have an energy efficiency rating of F or G. This house therefore falls within the coldest 8% of properties of this age. The heating system itself is below modern standards and inefficient in its operation, which is reflected in the low (Band F) EPC rating. This, alongside a lack of fully programmable controls for any occupant, makes it unlikely that the system can economically achieve the healthy indoor temperature set out by the baseline indicators throughout cold weather.

These factors combined suggest that there is an increased likelihood of a harmful occurrence to the vulnerable group over a 12-month period.

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 45.0 National Average 45.0 These scores are simply calculated as the sum of the other three harm outcomes subtracted from 100%			
Example Dwelling + National Average	30.0		30.0		30.0				
	20.0		20.0	Example Dwelling + National Average	20.0				
Likely	10.0	Likely	10.0		10.0				
	5.0	Example Dwelling + National Average	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 30.0%		Score 5.0%		Score 20.0%		Score 45.0%			

Justification of Scoring

Although the likelihood of sub-optimal indoor temperatures is higher than the average, there is nothing to indicate that the resulting spread of harms would be increased in severity 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 100		
Extreme 30.0%	Severe 5.0%	Serious 20.0%
		Moderate 45.0%
Category	Band	Score
1 Legal duty to take action	High	10,000
	Example Dwelling	3,115
2 Discretion to take action	Medium	1,000
	National Average	311
	Low	100

Score
3,115

Scenario 2

After works meeting baseline indicators

Likelihood of Harm
1 in 1,000

Extreme 30.0%	Severe 5.0%	Serious 20.0%	Moderate 45.0%
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Category	Band	Score
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1 Legal duty to take action	High	10,000
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2 Discretion to take action	Medium	1,000
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Example**623**National
Average

311

Low 100

Score

311**Scenario 3**

After further improvements

Likelihood of Harm
1 in 2,000

Extreme 30.0%	Severe 5.0%	Serious 20.0%	Moderate 45.0%
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Category	Band	Score
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1 Legal duty to take action	High	10,000
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2 Discretion to take action	Medium	1,000
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National 311

Example Dwelling **156****Low** 100

Score

156**Justification of Scoring**

After works meeting baseline indicators

Works to achieve baseline indicators include the installation of at least 250mm of loft insulation to the main roof, the installation of cavity wall and flat roof insulation within the rear extension and the installation of mechanical extract ventilation to prevent the need to open windows to ventilate the property. These measures would significantly reduce heat loss from the property.

Justification of Scoring

After further improvements

Further works required to improve this property would involve installing double-glazed windows and improving draught-proofing around doors, letterboxes and other key points where uncontrollable draughts may occur. A fully programmable and efficient heating system incorporating a modern boiler with timer, thermostat and TRVs would improve the property further still. Where practicable to do so, the installation of floor insulation would further aid heat retention. Walls and roofs provide the greatest areas of heat loss, followed by windows and doors, and then floors. Further works at the property will need to take account of the legal considerations below as well as the HHSRS.

Other Relevant Legislation and Guidance

Minimum Energy Efficiency Standards

The Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015 (often referred to as the Minimum Energy Efficiency standards/MEES) set a minimum energy efficiency level for domestic private rented properties. Since 1 April 2020, property owners can no longer let or continue to let properties covered by the MEES Regulations if they have an EPC rating below E unless they have a valid exemption in place. The Government has since proposed that all rental properties will need an EPC rating of 'C' or above in the future (which remains a proposal at the time of writing), and it will be in a property owner's interest to consider this when making decisions around conducting works, as it may be more economically efficient to improve a property straight to Band C rather than carrying out graduated works over a period of time.

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.