



B9.4/B11.4

Housing Health and Safety Rating System (HHSRS)

Case Studies

Group B
Physiological
Requirements

Hazard B9
Excess
Cold

Example B9.4/B11.4
Post-1979
Semi-detached House
(Non-HMO)

Hazard B11
Damp and
Mould Growth

Vulnerable Group
Excess Cold
All persons aged
65 years and over

Vulnerable Group
Damp and Mould Growth
All persons aged
14 years and under

Multiple Locations
Yes

Related Hazards
No



Dwelling

Description

This is a two-bedroomed semi-detached house, occupied by a couple with 3-year-old child. It is constructed from brick and blockwork, with cavity insulated walls and double-glazed uPVC doors and windows. The concrete-tiled roof and plastic gutters and downpipes are in sound condition.

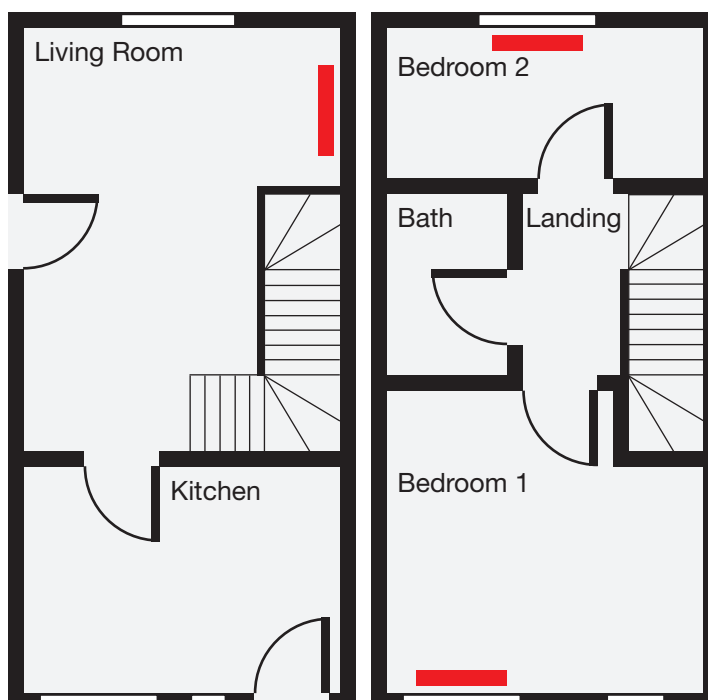
There is ample space in the enclosed rear garden for a rotary clothes dryer. In the kitchen, the cooker is located on the external wall and has a cooker hood above that extracts moisture direct to the outside air. There are no issues with damp in the kitchen.

The EPC is rated D (with a score of 55) and the electrical system is satisfactory.



1
Front exterior view of
property

Location of the storage heaters



2
Ground Floorplan

3
First Floorplan

Deficiencies

Description

Heating to the property is provided by original night storage heaters in the living room and both bedrooms, but there is no heating in the kitchen or bathroom. They are on an economy tariff with time clocks, but there is no room thermostat, nor is there any convector boost facility to the storage heaters. The storage heaters have no accompanying instructions, and the single heater in the living room gives out insufficient heat to keep it warm: heat escapes up the open stairs onto the landing and into the bedrooms.

Loft insulation was measured as 75mm. The loft hatch is not secured and is loose, making it draughty in high winds.

There is an over-bath shower provided by a mixer tap in the bathroom. The bathroom has no external walls and so an extractor fan is the sole means of ventilation. The extractor fan is very noisy and does not overrun when the light is switched off. The extractor vent is difficult to access and clean as it is over the bath. There is black mould on the bathroom ceiling over the bath, which is evidently difficult to remove as the tenants' repeated attempts to clean it off have damaged the surface of the ceiling. The mould covers approximately 20% of the bathroom ceiling.

There are no trickle vents in the bedroom windows and there is mould growth around the window reveals (less than 5% of wall and ceiling area) but nowhere else in the house.



4
Night storage heater



5
Mould growth to bedroom
window reveal



6
Bathroom ceiling

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.
6	Clothes Drying Facilities	0	1	2	3	6.1	Where the dwelling does not contain a secure and private garden or yard for the exclusive use of that dwelling, a dryer (vented or recirculation type), or dedicated space to install a dryer, or access to a communal dryer facility must be provided.
14	Lighting and Services	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	15.3	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 40mm.
		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 WC 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 must be capable of being controlled effectively and timed to operate by the occupants.

Relevant Baseline
Indicators

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, WC 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.
17	Moisture and Contaminant 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.
		0	1	2	3	17.2	The building's drainage system, such as footing or foundation drains, gutters, downspouts, rainwater collection containers or other elements shall direct water away from the structure.
		0	1	2	3	17.3	No single room in any of the property shall have an observable level of damp or mould growth or deterioration of internal finishes that exceeds 5% of the wall and/or ceiling surface.

Other Relevant Matters

Excess Cold

Score					Matters affecting Likelihood of Harm
0	1	2	3		Thermostatic radiator valves
0	1	2	3		Insulation settling
0	1	2	3		Ventilation quantity
0	1	2	3		Ventilation control
0	1	2	3		Draught proofing

Damp and Mould Growth

Score					Matters affecting Likelihood of Harm
0	1	2	3		Energy efficiency
0	1	2	3		Exposed water tanks and pipework
0	1	2	3		Plumbing and waste pipes
0	1	2	3		Roof and sub-floor spaces
0	1	2	3		Small room sizes
0	1	2	3		Flooding

0Satisfactory or N/A

1Not Satisfactory

2Defective

3Seriously Defective

Score					Matters affecting Harm Outcomes
0	1	2	3		Thermostatic radiator valves
0	1	2	3		Insulation settling
0	1	2	3		Ventilation quantity
0	1	2	3		Ventilation control
0	1	2	3		Draught proofing

Score					Matters affecting Harm Outcomes
0	1	2	3		Energy efficiency
0	1	2	3		Exposed water tanks and pipework
0	1	2	3		Plumbing and waste pipes
0	1	2	3		Roof and sub-floor spaces
0	1	2	3		Small room sizes
0	1	2	3		Flooding

Likelihood of Harm

Excess Cold

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	National Average	1 in 1,000
		1 in 2,000
		1 in 3,000
		1 in 5,000

Score

1 in 200

Justification of Scoring

Likelihood of Harm

The heating system provided is inadequate to keep the living room warm, and excessive heat loss through the poorly insulated roof is putting persons aged 65 years or older at increased risk of cardiovascular or respiratory disease, particularly as they are more likely to spend longer periods of time at home during cold winter weather. In addition, there is no heating in the kitchen or bathroom. Whilst the likelihood of harm is higher than the national average, the presence of insulated cavity walls, double glazing, some loft insulation and fixed heating to the habitable rooms explains why the likelihood of harm is not higher.

Damp and Mould Growth

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
	Example Dwelling	1 in 50
Unlikely		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 50

Justification of Scoring

Likelihood of Harm

The lack of heating and effective ventilation in the bathroom has led to significant mould growth in this room, which is a frequently used area. There is also some mould in the bedrooms: in these rooms, the occupants would be exposed to the mould spores for longer periods.

Harm Outcomes

Excess Cold							
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
Harm Outcomes

There is no reason to change the harm outcomes from the national average.

Damp and Mould Growth

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 30.0 20.0	Very Likely 50.0 30.0 20.0	Very Likely 50.0 30.0 20.0	Example Dwelling + 89.0
Likely 10.0 5.0 2.0	Likely 10.0 5.0 2.0	Example Dwelling + National Average 10.0 5.0 2.0	National Average 89.0
Unlikely 1.0 0.5 0.2	Example Dwelling + National Average 1.0 0.5 0.2	Unlikely 1.0 0.5 0.2	These scores are simply calculated as the sum of the other three harm outcomes subtracted from 100%
Very Unlikely 0.1	Very Unlikely 0.1 0.0	Very Unlikely 0.1 0.0	
Example Dwelling + National Average 0.0			
Score 0.0%	Score 1.0%	Score 10.0%	Score 89.0%

Justification of Scoring

Harm Outcomes

There is no reason to change the harm outcomes from the national average.

Safety Ratings

Key

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

Scenario 1
As described in this document

Excess
Cold

Likelihood of Harm
1 in 200

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	1,557
-------------------------	--------------

2 Discretion to take action	Medium	1,000
-----------------------------------	---------------	-------

National Average	311
---------------------	-----

Low	100
------------	-----

Score
1,557

Damp and
Mould Growth

Likelihood of Harm
1 in 50

Extreme 0.0%	Severe 1.0%	Serious 10.0%	Moderate 89.0%
-----------------	----------------	------------------	-------------------

Category	Band	Score
----------	------	-------

1 Legal duty to take action	High	10,000
-----------------------------------	-------------	--------

2 Discretion to take action	Medium	1,000
-----------------------------------	---------------	-------

Example Dwelling	Low	98
-------------------------	------------	-----------

National Average	5
---------------------	---

Score
98

Scenario 2

After works meeting baseline indicators

**Excess
Cold**Likelihood of Harm
1 in 1,000

Extreme 30.0%	Severe 5.0%	Serious 20.0%	Moderate 45.0%
------------------	----------------	------------------	-------------------

Category	Band	Score
----------	------	-------

1 Legal duty to take action	High	10,000
-----------------------------------	-------------	--------

2 Discretion to take action	Medium	1,000
-----------------------------------	---------------	-------

Example Dwelling +	311
---------------------------	------------

National Average	Low	100
---------------------	------------	-----

Score

311**Damp and
Mould Growth**Likelihood of Harm
1 in 1,000

Extreme 0.0%	Severe 1.0%	Serious 10.0%	Moderate 89.0%
-----------------	----------------	------------------	-------------------

Category	Band	Score
----------	------	-------

1 Legal duty to take action	High	10,000
-----------------------------------	-------------	--------

2 Discretion to take action	Medium	1,000
-----------------------------------	---------------	-------

Low	100
------------	-----

Example Dwelling +	5
---------------------------	----------

National Average	
---------------------	--

Score

5**Justification of Scoring**

After works meeting baseline indicators

If the heating system is improved so that it can provide sufficient controllable heat throughout the day and a heat source is provided in the bathroom, then this will improve the generation of heat. Also, if the loft insulation is topped up to 250mm and mechanical extract ventilation is installed to the kitchen and bathroom, these measures combined will improve heat retention, and the likelihood of harm will return to the national average.

Justification of Scoring

After works meeting baseline indicators

The likelihood score will return to the national average if the minimum standards are met. Work to achieve this will involve increasing the loft insulation to 250mm or equivalent U-value; ensuring that the extractor fan in the bathroom operates effectively and has a timed overrun; removing the mould growth completely, followed by appropriate redecoration of the surfaces; and providing effective heating throughout the house. All extractor fans should be capable of being kept clean and in good order.

Scenario 3
After further improvements

Excess Cold

Likelihood of Harm
1 in 2,000

Extreme 30.0%	Severe 5.0%	Serious 20.0%	Moderate 45.0%
------------------	----------------	------------------	-------------------

Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Medium	1,000
Average		311
Example Dwelling	Low	156

Score
156

Damp and Mould Growth

Likelihood of Harm

Extreme	Severe	Serious	Moderate
---------	--------	---------	----------

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

Score

Justification of Scoring
After further improvements

Provision of an appropriate heater in the kitchen and photovoltaic and thermal solar panels on the roof would help to reduce electricity and water heating costs, which would also result in the likelihood of harm being reduced still further, to better than the national average.

Justification of Scoring
After further improvements

N/A

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.