



B9.5/B11.5

Housing Health and Safety Rating System (HHSRS)

Group B
Physiological
Requirements

Example B9.5/B11.5
Post-1979
Mid-terraced House
(Non-HMO)

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

Case Studies

Hazard B9
Excess Cold

Hazard B11
Damp and
Mould Growth

Related Hazard D18
Crowding and
Space

Related Hazard D19
Entry by Intruders

Related Hazard D20
Noise



Dwelling

Description of Dwelling

This is a three-bedroomed mid-terrace house, built with solid brick walls and a slate roof. The roof, gutters and downpipes are in sound condition. The property is east facing, located in a small market town.

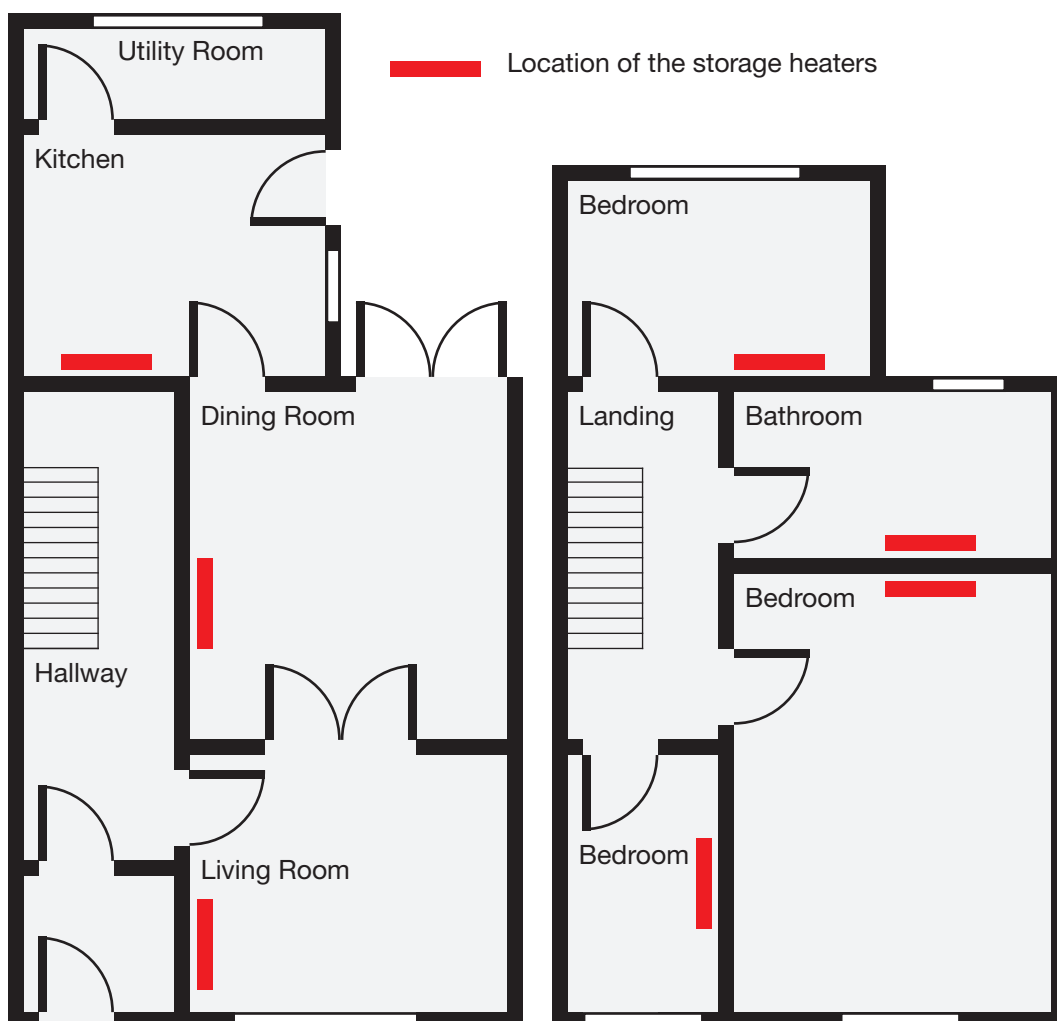
The doors and windows on the front elevation are wooden framed whilst those to the rear have been replaced with uPVC. All are double glazed and in good condition, opening and closing freely.

The suspended timber floors in the ground floor rooms are sound and there is adequate subfloor ventilation. There is a gas boiler providing central heating with radiators in every room except the ground floor utility. There is space for a rotary drier in the back yard.

There is a gas safety certificate, and the electrical installation is satisfactory. The EPC provided in 2017 is F rated, the score being 23. The property is rented to a family of two adults and two children.



1
Front exterior view of
property



2
Floorplans showing
location of radiators

Deficiencies

Description of Deficiencies

The non-condensing gas boiler is over 30 years old and has not been serviced for the last 5 years. While it has a time clock, it does not have a room thermostat, nor are there any thermostatic radiator valves. The radiators are also old and are positioned on the internal walls of the rooms to minimise the pipe runs, rather than being positioned under the windows, but there is no radiator in the utility room. The front living room has a solid-fuel room heater in the fireplace. Hot water is via the boiler, but there is no cylinder thermostat.

The double glazed windows do not have trickle vents. There is no extractor fan in either the bathroom or kitchen, and there is some mould growth to the window reveals in the bathroom and bedrooms. The small front bedroom (used as a bedroom) smells of mildew.

There are small areas of penetrating damp under the bay window in the living room. The brickwork under the bay requires some repointing and there is salt on the surface of the bricks, indicating that the wall does not dry out after heavy rain. Internally there is some mould growth on the wall under the bay window (less than 5% of the wall area of the room) and the plaster is damp to the touch after heavy rain in winter months.

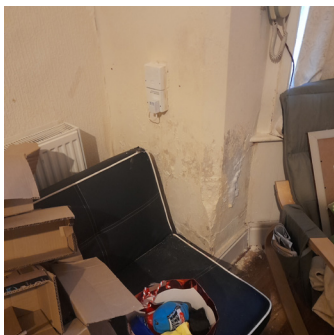
In the unheated rear utility room where the boiler is situated, the single-leaf exterior end wall has patches of perished plaster and flaking paint. Externally the rear wall requires some repointing. A number of bricks are perished and there are open mortar joints (the affected area is 5m², which is the majority of the rear wall).

On the side wall behind the toilet there is another small area of perished brickwork, to which a section of rendering has been applied (1.25 × 2.24 metres approx.).

The mineral-wool loft insulation has settled to a depth of less than 50mm, and the suspended timber ground floors are not insulated. Forty percent of the fixed lighting is low energy.



2
30-year-old
non-condensing boiler



3
Radiator on
internal wall



4
Damaged brickwork



5
Damp salted
internal plaster



6
Damp and crumbling
plaster to window reveal

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	14.4	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 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 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 must be capable of being controlled effectively and timed to operate by the occupiers.

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, 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.
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

0

Satisfactory or N/A

1

Not Satisfactory

2

Defective

3

Seriously 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
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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 thermal properties of the dwelling are such that heat will be lost through the walls, the poorly insulated loft and the uninsulated suspended timber floor far more quickly than a comparable well-insulated building. Areas of dampness further reduce the thermal efficiency of the structure.

The old, inefficient boiler completely lacks proper controls for both programming the system on a timer/ thermostat basis and via any thermostatic controls to radiators. The poor siting of the radiators will further contribute to the structure not being able to efficiently reach a comfortable temperature.

The combination of the inefficient heating system, very poor levels of insulation and poor thermal performance of the structure will mean that, over a period of 12 months, it will be difficult to heat the dwelling to recommended internal temperatures. Maintenance of internal temperature will further be impacted by the lack of mechanical extract ventilation, meaning windows must be opened in order to ventilate the property – the presence of mould growth being a probable indicator this doesn't happen too often.

Likelihood of Harm

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
	Example Dwelling	1 in 30
		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 30

Justification of Scoring

Likelihood of Harm

This solid-walled property has poor thermal insulation that results in rapid heat loss during cold winter weather. The lack of mechanical ventilation to the bathroom and kitchen will generate high moisture levels which will condense on cold external walls and window reveals throughout the property, leading to mould growth. The lack of fixed heating to the utility room and areas of brick and mortar defects to the front and rear elevations will cause penetrating damp and further reduce the thermal efficiency of the building.

Although mould growth is limited in extent and is evident to less than 5% of the wall area, over a 12-month period children in the most vulnerable age group will be susceptible to asthma or other respiratory infections. Living in a cold, damp house is also likely to have an adverse impact on mental health and well-being.

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
Example Dwelling + National Average	30.0		30.0		30.0	National Average	45.0
	20.0		20.0	Example Dwelling + National Average	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		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 nothing in the case study that would demonstrate health outcomes would be worse than the national average.

Harm Outcomes

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

Justification of Scoring

Harm Outcomes

There is nothing in the case study that would demonstrate health outcomes would be worse than 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
2 Discretion to take action	Example Dwelling	1,557
		1,000
	National Average	311
	Low	100

Score
1,557

Damp and Mould Growth

Likelihood of Harm
1 in 30

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	163
		100
	Low	
	National Average	5

Score
163

Scenario 2

After works meeting baseline indicators

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

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

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 Dwelling + National Average	Low	100
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Score
311

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

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

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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Low	100
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Score
5

**Example
Dwelling +
National
Average**

Justification of Scoring

After works meeting baseline indicators

Compliance with the baseline indicators relevant to Excess Cold would require the replacement of the existing boiler with a modern and more efficient condensing boiler. This would be implemented alongside the installation of a fully controllable modernised heating system, including room thermostat, programmer and thermostatic radiator valves to radiators. The further provision of a minimum of 250 mm loft insulation will assist with retention of heat at a comfortable level. Compliance with the baseline indicators relevant to Damp and Mould Growth would require the installation of mechanical extract ventilation to the kitchen and bathroom, and completion of necessary repairs to the structure of the property to resolve the areas of penetrating damp, leaving a sound, watertight finish.

Alongside the fitting of a hot water thermostat, these measures would return the property closer to the national average.

Note: considering the assessment of Excess Cold and Damp and Mould Growth together, alongside relevant baseline indicators, demonstrates the improvements that can be achieved to a dwelling when a whole-house approach is taken. When taking into account the overall thermal efficiency, compliance with section 15 of the baseline indicators to resolve excess cold would also resolve the issues associated with damp and mould growth.

Scenario 3
After further improvements

Excess Cold

Likelihood of Harm
1 in 3,000

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	104	
Score			104

Damp and Mould Growth

Likelihood of Harm
1 in 2,000

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	
	Average	5	
Example Dwelling		2	
Score			2

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.

Other Relevant Legislation and Guidance

Energy Efficiency

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.