



## Housing Health and Safety Rating System (HHSRS)

## Case Studies

Group D  
**Psychological  
Requirements**

Hazard D20  
**Noise**

Example D20.1  
**Pre-1920  
Five-storey  
(HMO)**

Vulnerable Group  
Persons of all ages

Multiple Locations  
No

Related Hazards  
No

# Dwelling

## Description

This is a pre-1920s flat in a five-storey, Victorian mid-terrace house. The house was thought to have been divided into five self-contained flats sometime in the 1920s. Each flat is accessed from the common hall and stairs, and has a living room at the front of the house and bedroom and kitchen at the rear, plus an internal bathroom.

The flat being assessed is at first-floor level and is occupied by a single tenant. The property is not subject to Article 4 planning, listed building or conservation area restrictions.



1  
Front elevation



2  
Rear elevation of property

# Deficiencies

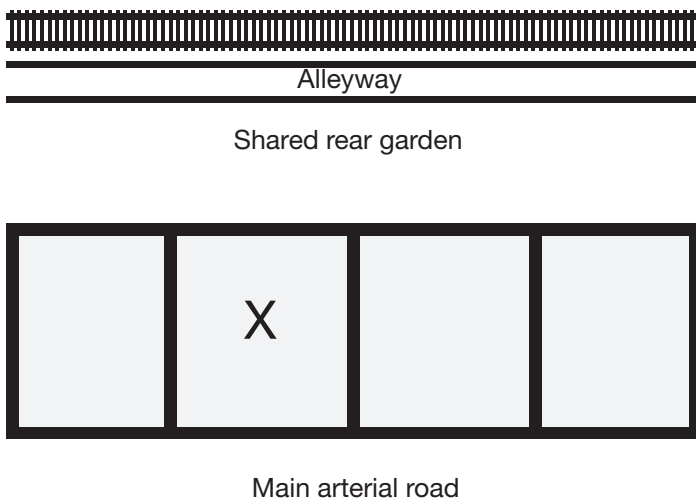
## Description

The house is located next to a parade of shops on a main arterial road running out of London. This road provides access to the motorway and is used by heavy goods vehicles and buses as well as for long-distance and local car journeys. Immediately behind the short rear yard and garden is the main London to Scotland rail line. This line is used by high-speed trains, local diesel trains and goods trains, which continue to run through the night. The main living room of the flat overlooks the main road, and the bedroom and kitchen overlook the rail line.

All windows are traditional, single-glazed, double-hung sashes, and many, particularly those at the rear, are ill-fitting and in disrepair.

Noise monitoring has been carried out in the bedroom which reached 50db during the day and 45db overnight

The layout of the flats is such that they are 'stacked' (i.e. living room over living room, bedroom over bedroom, etc.) and the sound insulation between individual flats has not been identified as an issue so far, perhaps due to the high background noise levels.



# Relevant Baseline Indicators

0

Satisfactory  
or N/A

1

Not  
Satisfactory

2

Defective

3

Seriously  
Defective

Subject		Score				BI	Baseline Indicators		
10	Noise	0	1	2	3	10.1	All new flats or flat conversions must comply fully with current building regulations in respect of sound insulation. Older flats or flat conversions should comply with all relevant Building Regulations related to noise.		
		0	1	2	3	10.2	The noise level inside the dwelling caused by steady external noise sources must not exceed:		
							Time	Level	Area
							07:00–23:00	40dB LAeq T16 40dB LAeq T16 45dB LAeq T16	Living Room Bedroom Dining Room
							23:00–07:00	35dB LAeq T8	Bedroom

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		Location
0	1	2	3		Internal arrangement
0	1	2	3		Floor finishes
0	1	2	3		Windows and doors
0	1	2	3		Site of plumbing
0	1	2	3		Equipment
0	1	2	3		Door closers

Score					Matters affecting Harm Outcomes
0	1	2	3		Location
0	1	2	3		Internal arrangement
0	1	2	3		Floor finishes
0	1	2	3		Windows and doors
0	1	2	3		Site of plumbing
0	1	2	3		Equipment
0	1	2	3		Door closers

# Likelihood of Harm

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

**Justification of Scoring**

The train line to the rear and main arterial road to the front will generate external noise levels significantly above average throughout the day. This means that the dwelling is exposed to excessively noisy environments both to the front and rear of the property, and there is no living space within the dwelling in which to have respite from the noisy environment. The ill-fitting single-glazed windows will have limited effect on sound transmission into the property.

Whilst traffic volume on the road may reduce overnight, this is likely to be offset by more emergency services sirens, delivery vehicles and pedestrian traffic to and from licensed premises, particularly at weekends, which could cause sleep disruption, increase stress levels and adversely affect mental health.

The dwelling will be subject to excessive noise levels on a relatively constant basis. All of these factors justify dramatically increasing the likelihood of an occurrence.

# 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	89.9
	30.0		30.0		30.0		
	20.0		20.0		20.0		
Likely	10.0	Likely	10.0	Example Dwelling + National Average	10.0	National Average	89.9
	5.0		5.0		5.0		
	2.0		2.0		2.0		
Unlikely	1.0	Unlikely	1.0	Unlikely	1.0	These scores are simply calculated as the sum of the other three harm outcomes subtracted from 100%	
	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 10.0%		Score 89.9%	

**Justification of Scoring**

There is no evidence to suggest that exposure to noise in this case would create any different harm outcomes from that of 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 2

Extreme 0.0%	Severe 0.1%	Serious 10.0%	Moderate 89.9%
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Category	Band	Score
1 Legal duty to take action	High	10,000
Example Dwelling		2,445
2 Discretion to take action	Medium	1,000
	Low	100
National Average		24

Score  
2,445



**Scenario 2**

After works meeting baseline indicators

Likelihood of Harm  
1 in 3

Extreme	Severe	Serious	Moderate
0.0%	0.1%	10.0%	89.9%

Category	Band	Score
1 Legal duty to take action	<b>High</b>	10,000
2 Discretion to take action	<b>Example Dwelling</b>	<b>1,630</b>
	<b>Medium</b>	1,000
	<b>Low</b>	100
National Average		24

Score

1,630

**Scenario 3**

After further improvements

Likelihood of Harm  
1 in 20

Extreme	Severe	Serious	Moderate
0.0%	0.1%	10.0%	89.9%

Category	Band	Score
1 Legal duty to take action	<b>High</b>	10,000
2 Discretion to take action	<b>Medium</b>	1,000
	<b>Example Dwelling</b>	<b>245</b>
	<b>Low</b>	100
National Average		24

Score

978

**Justification of Scoring**

After works meeting baseline indicators

BIs require that existing flat conversions should comply 'as fully as possible' with current building regulations; these pertain to the separation and sound insulation between the dwellings as a result of the conversion. In relation to external noise, the maximum sound levels to be achieved relate to steady external noise sources, whereas noise from passing trains is not steady and has low-frequency and vibrational components that are difficult to insulate against. Therefore, the improvement would be marginal.

**Justification of Scoring**

After further improvements

Further works would be necessary in terms of upgrading the windows to provide improved sound insulation. One option could be to overhaul the existing sash windows, ensuring they are close-fitting in the frame, to add draft-proofing and install secondary glazing, ideally with acoustic glass; however, the preferred option would be to remove the box sash windows and supply and fit new double- or triple-glazed windows, ideally with acoustic glass/specialised noise-insulating glazing. This has the potential to reduce the likelihood significantly, depending on which option is taken; however, it may not be possible to achieve the national average. Acoustic fencing could be provided at the bottom of the garden, but unless similar fencing is installed in the neighbouring gardens, there may be no noticeable change in noise levels.

# Other Relevant Legislation and Guidance

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## Leasehold Properties

In leasehold properties, 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).

## Party Walls

A party wall agreement may be needed before works can be undertaken to party structures, party walls that form part of a building, or shared garden boundaries.

## Building Regulations

The HHSRS is a risk-based assessment system focusing on how people can be harmed through their interaction with the individual circumstances present in a particular dwelling. By contrast, building regulations are building-focused acceptable solutions provided by approved documents indicating minimum standards to achieve compliance. As such, although properties may be compliant with the more prescriptive building regulations, and while compliance may usually be considered a positive indicator in the assessment of risk, there can be occasions where individual circumstances allow risk to prevail.

## Dwelling Perspective

When assessing multiple dwellings in the same building, due consideration may need to be given to the level of risk posed to different flats within a building. The likelihood of an occurrence, and harm outcomes resulting from an occurrence, may vary significantly for many hazards, depending upon the location of the flat within a building.

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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.