Ministry of Housing, Communities & Local Government

A3.1

Housing Health and Safety Rating System (HHSRS)

Case Studies

Group A
Protection Against Accidents

Hazard A3
Falling Between Levels

Example A3.1
1946–79
Semi-detached

Vulnerable Group
All persons aged 5 years and under

Multiple Locations
Yes

Related Hazards A6
Collisions, Entrapment and Ergonomics

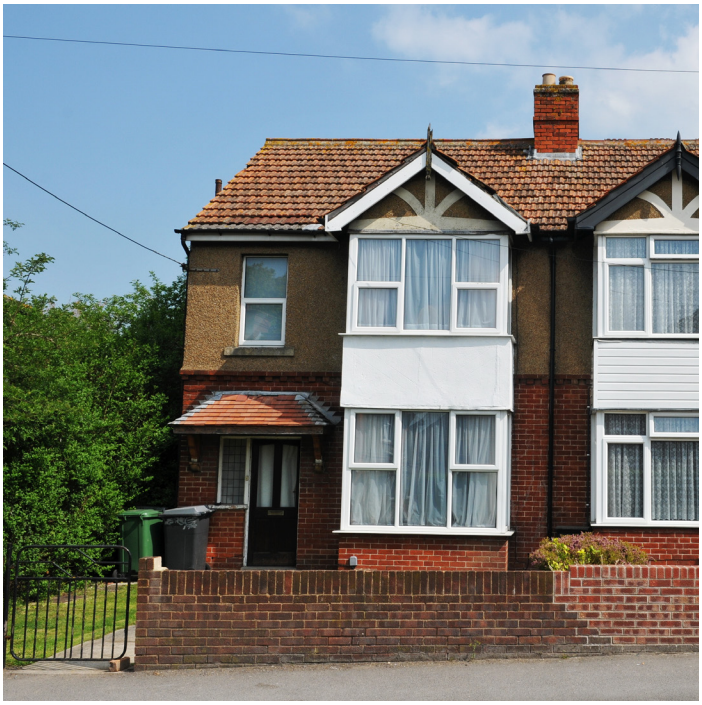
RHE Global

Cardiff Metropolitan University | Prifysgol Metropolitan Caerdydd

Dwelling

Description

This is a mid-1960s, three-bedroomed semi-detached house, rented to a family. The electrical installation is satisfactory, the energy performance certificate (EPC) is D rated, and the property is in reasonable repair. There are battery-powered smoke alarms suitably located on each floor.



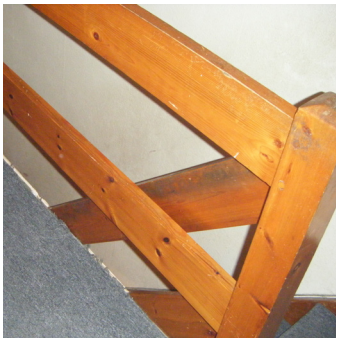
1
Front elevation of property

Deficiencies

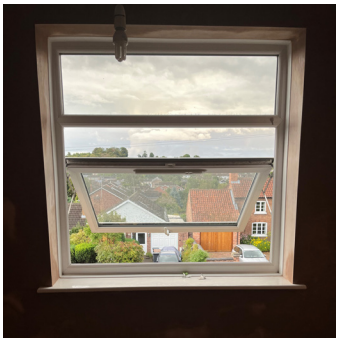
Description

Landing balustrade
This is some 900mm high and comprises three horizontal planks spanning between the top newel post and end post, and has continuous horizontal gaps over 200mm high in between. From the landing there is a distance of 2 metres to the bottom treads.

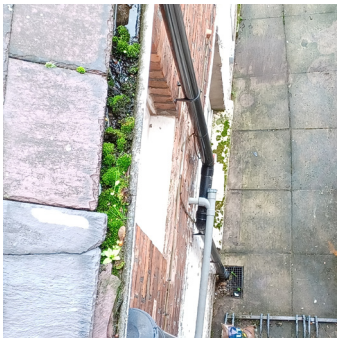
First floor windows
The bedroom windows have a large top-hung opening casement with no restrictor, each opening with ease. Both have sills some 850mm high with radiators below and are some 3.6 metres above the path and patio of concrete slabs in the garden.



2
First floor landing balustrade



3
Rear bedroom window fully extended



4
View looking down from the rear bedroom window

Relevant Baseline Indicators

0 Satisfactory or N/A

1 Not Satisfactory

2 Defective

3 Seriously Defective

Subject		Score	BI	Baseline Indicator
9	**External Space**	**0** 1 2 3	9.1	External yards, paths, steps, accessways and surrounds within the curtilage of the dwelling shall be in good repair, even and well drained. Accessways must be suitable non-slip surfaces, have adequate lighting and should not have slopes of sufficient gradient to present a falls risk. This includes consideration to unevenness, trip risks and poor slip resistance, to any steps or surfaces within external space that is provided, to the front door, yard and garden. Where there are drops of more than 300mm from paths, patios, steps, terraces or garden areas guarding will be necessary where there are high risks of falling. All boundaries should be clearly defined and enclosed by well-maintained and suitable walls or fences. This also applies to structure, accessways, security doors and lifts.
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.
13	**Guards**	0 1 2 **3**	13.1	Every stairway, porch, patio, landing, balcony walkway, terrace and hall located more than 600mm above an adjacent area shall have a structurally sound guard, between 900mm and 1100mm high, measured vertically from the floor. The guard shall be firmly fastened, capable of supporting normally imposed loads and in good condition. Balusters with a minimum thickness of 10mm shall be placed at intervals that do not allow passage of a sphere greater than 100mm in diameter. There shall be no climbable cross-pieces.
		0 1 2 **3**	13.2	All windows with an opening section greater than 100mm, through which a person may fall a single storey or more , shall have a fall-prevention device that restricts opening to less than 100mm. It must be possible to overcome this restriction easily when the windows in question are required to be escape windows, under the building regulations.
14	**Lighting and Services**	**0** 1 2 3	14.2	Every hall, stairs and landing within the house, and every room used, or intended for use, by the occupant of the house shall have a suitable and adequate means of artificial lighting that is controllable and accessible which can allow lighting to be turned on and off and bulbs/fixtures to be changed and maintained safely. Two-way or PIR-activated lighting shall be provided to any internal staircase.

Relevant Matters

0	1	2	3
Satisfactory or N/A	Not Satisfactory	Defective	Seriously Defective

Score	Matters affecting Likelihood of Harm
0 1 **2** 3	Window operation
0 1 **2** 3	Window sill heights
0 1 **2** 3	Window cleaning

Score	Matters affecting Harm Outcomes
0 1 **2** 3	Height above ground
0 1 **2** 3	Nature of ground
0 1 2 3	Non-safety glass

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

The design of the balustrading to the first-floor landing (i.e. horizontal planks with large gaps over 200mm) acts like a ladder, which might encourage a member of the vulnerable group to climb and could lead to a fall of up to 2 metres.

The first-floor windows are unrestricted bottom-openers and only 850mm from internal floor level, putting them within relatively easy reach of the vulnerable group, potentially resulting in a fall through the wide opening onto the path or patio comprising concrete slabs. The risk is higher in a bedroom where a child is likely to be left unattended for extended periods and where a bed or other furniture could be placed alongside the low window sill.

In combination, these issues present a far greater than average risk for the hazard of Falls Between Levels.

Harm Outcomes

Extreme

Death, permanent paralysis, etc.

Very Likely	50.0
	30.0
	20.0
Likely	10.0
	5.0
Example Dwelling	2.0
Unlikely	1.0
	0.5
National Average	0.2
Very Unlikely	0.1
	0.0

Score
2.0%

Severe

Heart attack, serious fractures, etc.

Very Likely	50.0
	30.0
Example Dwelling	20.0
Likely	10.0
	5.0
National Average	2.0
Unlikely	1.0
	0.5
	0.2
Very Unlikely	0.1
	0.0

Score
20.0%

Serious

Chronic stress, severe concussion, etc.

Very Likely	50.0
Example Dwelling	30.0
	20.0
National Average	10.0
	5.0
	2.0
Unlikely	1.0
	0.5
	0.2
Very Unlikely	0.1
	0.0

Score
30.0%

Moderate

Broken fingers, moderate cuts, etc.

Example Dwelling	48.0
National Average	87.8

These scores are simply calculated as the sum of the other three harm outcomes subtracted from 100%

Score
48.0%

Justification of Scoring

Windows with unrestricted openings: Hard surfaces comprising concrete slabs beneath the first-floor windows which are 3.6 metres from the external ground level are likely to lead to greater levels of injury when compared to a flowerbed or lawn. Staircase: climbing the guarding to the landing increases the height of the fall to approximately 2.9 metres. Overall there is an elevated risk of Extreme, Severe or Serious harm, and the spread of harm outcomes has been adjusted accordingly.

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	Severe	Serious	Moderate
2.0%	20.0%	30.0%	48.0%

Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Medium	1,000
Example Dwelling		**495**
	Low	100
National Average		8

Score
495

Scenario 2
After works meeting baseline indicators

Likelihood of Harm
1 in 1,000

Extreme	Severe	Serious	Moderate
2.0%	20.0%	30.0%	48.0%

Category	Band	Score
1 Legal duty to take action	High	10,000
2 Discretion to take action	Medium	1,000
	Low	100
Example		**49**
National Average		8

Score
49

Scenario 3
After further improvements

Likelihood of Harm
1 in 1,000

Extreme	Severe	Serious	Moderate
0.2%	2.0%	10.0%	87.8%

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		**8**

Score
8

Justification of Scoring
After works meeting baseline indicators

Compliance with Baseline Indicator 13.1 would mean that balustrading to the landing would be covered or altered to remove the climbable cross-pieces and ensure gaps between balusters that do not exceed 100mm. Compliance with BI 13.2 would see window restrictors added to the first-floor windows. These measures would significantly reduce the likelihood of a fall occurring; however, the harm outcomes remain unchanged from the original scoring as the heights and surfaces would remain unchanged.

Justification of Scoring
After further improvements

Further works to reduce the harm outcomes could entail, for example, removing the concrete slabs below the first-floor window and replacing with more forgiving surface finishes, such as a lawned area. These measures are not considered necessary as they would not be cost-effective in terms of the small benefit from reducing the harm outcome.

Other Relevant Legislation and Guidance

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 website.