



Housing Health and Safety Rating System (HHSRS)

Case Studies

Group A
Protection Against
Accidents

Hazard A7
Structural Collapse
and Falling Elements

Example A7.2
Post-1979
Semi-detached
House

Vulnerable Group
Persons of all ages

Multiple Locations
Yes

Related Hazard A1
Falls on the Level



Dwelling

Description

This is a three-bedroomed semi-detached house, built in the 1980s. There is a lounge-dining room and kitchen on the ground floor, with three bedrooms and a bathroom on the first floor. The drains are not contributing to subsidence or land movement. There is no gas supply to the house or neighbouring properties, and the electrical installation is satisfactory.



1

Rear view of building

Deficiencies

Description

Over the last three years there has been evidence of structural movement in the house, initially showing as minor cracks in the wall plaster. There is stepped cracking to the brickwork joints in four locations to the rear elevation: these include above the kitchen door and below the kitchen and lounge-dining room windows. Cracks have been re-pointed with mastic and have re-opened in places. Crack monitors or 'tell-tales' have been installed in a number of locations, one of which has cracked.

Externally there is a raised paved patio in the rear garden surrounded by a brick-built wall (single brick) approximately 600mm high. The paving is uneven, some being loose, and the wall is leaning and cracked. At the access to the patio is a brick-built pillar with a loose concrete coping. Two pieces of coping have been dislodged from the retaining walls. The pillar and wall move when pushed.



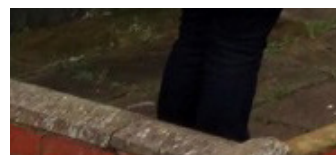
2
Crack below the
kitchen window



3
Crack below the lounge-
dining room window



4
Crack above the
kitchen window



4
Brick wall with unstable
pillar and dislodged and
loose coping stones

Relevant Baseline Indicators

0

Satisfactory
or N/A

1

Not
Satisfactory

2

Defective

3

Seriously
Defective

Subject		Score				BI	Baseline Indicator
1	Structural Condition	0	1	2	3	1.1	Externally, every foundation, roof, ridge line, flashing, fascia, soffit and bargeboard, exterior staircase, exterior wall/fence shall be safe to use and capable of supporting the intended design loads and load effects and shall be in a proper state of structural repair. Internally, every wall, floor, ceiling, inside stair, porch, accessory structure, door, window and window glass shall be safe to use and capable of supporting the intended design loads and load effects, and shall be in a proper state of structural repair.
2	Drainage	0	1	2	3	2.1	Every drainage fixture, stack, vent, water, waste, and sewer pipe shall be properly installed, maintained in a safe and functional order, and kept free from obstructions, leaks and defects. The drainage system must have suitable rodding or access points to allow clearance of blockages.
4	Sanitary Facilities: Bathroom	0	1	2	3	4.7	There must be a cleanable, non-absorbent water-resistant material on floor surfaces and extending on bathroom walls at least 300mm above a bath and 1800mm above the floor of a shower or shower tray. Such materials on walls and floors shall form a watertight joint with each other and with the bathtub or shower tray. Any shower shall have a shower screen, curtain or return wall that prevents water spillage to the floor.
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.

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

Fittings and fixtures

Score

Matters affecting
Harm Outcomes

0

1

2

3

Height above ground

0

1

2

3

Size/weight of element

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
	Example Dwelling 1 in 50
Unlikely	1 in 100
	1 in 200
	1 in 300
	1 in 500
Very Unlikely	1 in 1,000
	1 in 2,000
	1 in 3,000
	National Average 1 in 5,000

Score

1 in 50

Justification of Scoring
Likelihood of Harm

The raised paved patio in the rear garden is surrounded by a single-brick-built wall approximately 600 mm high that has uneven and loose paving, which increases the likelihood of someone tripping/stumbling onto the weakened retaining wall. This wall then has the potential to collapse, causing injury.

The cracking in the walls of the house suggests slow settlement rather than imminent structural collapse, although clearly the property is in a worse category than the national average.

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	79.8
	30.0		30.0		30.0		
	20.0		20.0		Example Dwelling	20.0	National Average
Likely	10.0	Likely	10.0	Likely	10.0	These scores are simply calculated as the sum of the other three harm outcomes subtracted from 100%	
	5.0		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		
Example Dwelling + National Average	0.1	Very Unlikely	0.1	Very Unlikely	0.1		
	0.0		Example Dwelling + National Average		0.0	0.0	
Score		Score		Score		Score	
0.2%		0.0%		20.0%		79.8%	

Justification of Scoring

Harm Outcomes

The 'Serious' harm outcome has been raised to reflect the size/weight of the element that could fall if either the wall or pillar collapsed, to reflect the potential harm outcomes of death, unconsciousness, head injury and concussion.

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 50			
Extreme 0.2%	Severe 0.0%	Serious 20.0%	Moderate 79.8%
Category	Band	Score	
1 Legal duty to take action	High	10,000	
2 Discretion to take action	Medium	1,000	
Example Dwelling		176	
	Low	100	
National Average		1	

Score
176

Scenario 2

After works meeting baseline indicators

Likelihood of Harm 1 in 5,000			
Extreme 0.0%	Severe 0.1%	Serious 5.0%	Moderate 94.9%
Category	Band	Score	
1 Legal duty to take action	High	10,000	
2 Discretion to take action	Medium	1,000	
	Low	100	
Score	Example Dwelling + National Average	1	

Justification of Scoring

After works meeting baseline indicators

Compliance with BI 1.1 would require the replacement of the unstable patio wall, pillar and coping stones. This would address the most imminent structural risk at the property. BI 1.1 would also require investigation and potential resolution of the cause of the structural cracking to the external structure of the property. This would reduce the likelihood to the national average.

Scenario 3

After further improvements

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

N/A

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.