

## 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

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## 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.



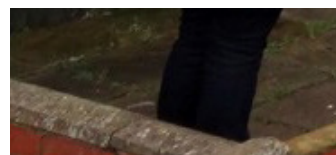
2  
Crack below the  
kitchen window



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

|  |                                    |
|--|------------------------------------|
| <b>Scale Points</b><br>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                            |
|  | <b>Example Dwelling</b> 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                         |
|  | <b>National Average</b> 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                    | <b>Example Dwelling</b>   | 79.8 |
|  | 30.0 |                                       | 30.0                                       |   | 30.0                    |   |      |
|  | 20.0 |                                       | 20.0                                       |   | <b>Example Dwelling</b> | 20.0  |      |
| Likely                                     | 10.0 | Likely                                | 10.0                                       | Likely                                  | 10.0                    | National Average  | 94.8 |
|  | 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                     |   |      |
| <b>Example Dwelling + National Average</b> | 0.1  | Very Unlikely                         | 0.1  | Very Unlikely                           | 0.1                     |   |      |
|  | 0.0  |                                       | <b>Example Dwelling + National Average</b> |   | 0.0                     |   |      |
| <b>Score</b>                               |      | <b>Score</b>                          |  | <b>Score</b>                            |                         |   |      |
| 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<br>Legal duty to<br>take action | High   | 10,000 |
| 2<br>Discretion to<br>take action | Medium | 1,000  |
|                                   | Low    | 100    |

| Likelihood of Harm<br>1 in 50     |                |                  |                   |
|-----------------------------------|----------------|------------------|-------------------|
| Extreme<br>0.2%                   | Severe<br>0.0% | Serious<br>20.0% | Moderate<br>79.8% |
| Category                          | Band           | Score            |                   |
| 1<br>Legal duty to<br>take action | High           | 10,000           |                   |
| 2<br>Discretion to<br>take action | Medium         | 1,000            |                   |
| Example<br>Dwelling               |                | 176              |                   |
|                                   | Low            | 100              |                   |
| National<br>Average               |                | 1                |                   |

Score  
176



Scenario 2

After works meeting baseline indicators

|                                   |                                     |                 |                   |
|-----------------------------------|-------------------------------------|-----------------|-------------------|
| Likelihood of Harm<br>1 in 5,000  |                                     |                 |                   |
| Extreme<br>0.0%                   | Severe<br>0.1%                      | Serious<br>5.0% | Moderate<br>94.9% |
| Category                          | Band                                |                 | Score             |
| 1<br>Legal duty to<br>take action | High                                |                 | 10,000            |
| 2<br>Discretion to<br>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<br>Legal duty to<br>take action | High   |         | 10,000   |
| 2<br>Discretion to<br>take action | Medium |         | 1,000    |
|                                   | Low    |         | 100      |
| Score                             |        |         |          |

Justification of Scoring

After further improvements

N/A

# Other Relevant Legislation and Guidance

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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 website.