

# The Cost of Unhealthy Housing

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# I'm going to argue that

1. Shifting the focus of housing assessment to the **effect of defects** clearly shows that dealing with bad housing is the cheaper option for society than not doing so.
2. There's no reason why this shouldn't work in the US as it does in England.

# The Housing Fitness Standard

For a dwelling-house to be fit it must -

- (a) be structurally stable;
- (b) be free from disrepair;
- (c) be free from dampness;
- (d) have adequate provision for lighting, heating and ventilation;
- (e) have an adequate piped supply of water;
- (f) have satisfactory facilities for the preparation and cooking of food, including a sink with hot and cold water supplies;
- (g) have a suitably located water closet for the exclusive use of the occupants;
- (h) have, for the exclusive use of the occupants, a suitably located fixed bath or shower and wash hand basin, each with a supply of hot and cold water;
- (i) have an effective system for the draining of foul, waste and surface water.

# The Housing Fitness Standard

## Problems ~

- Pass/Fail model
- Does not include all potential housing hazards
- Is building focused
- ...

# Housing Health & Safety Rating System

- A risk-based method for assessing housing conditions
- Developed and tested over ten years
- In April 2006, introduced as the statutory prescribed method for assessing houses in England and Wales

# HHSRS

Unique in several ways ~

1. Does not set a 'standard', but grades the severity of the condition
2. Focuses on the threat to health and/or safety from the condition (the effect of defects)
3. Can include all potential housing hazards

# HHSRS

## Principle ~

A dwelling, including the structure and associated outbuildings and garden, yard and/or other amenity space, should provide a safe and healthy environment for the occupants and any visitors.

# Potential Housing Hazards

## *A. Physiological Requirements*

Damp and mould growth etc  
Excessive cold  
Excessive heat  
Asbestos (and MMF)  
Biocides  
CO & Fuel combustion products  
Lead  
Radiation  
Uncombusted fuel gas  
VOCs

## *B. Psychological Requirements*

Crowding and Space  
Entry by intruders  
Lighting  
Noise

## *C. Protection Against Infection*

Domestic hygiene, Pests & Refuse  
Food Safety  
Personal Hygiene Sanitation & Drainage  
Water supply

## *D. Protection Against Accidents*

Falls associated with baths etc  
Falling on level surfaces  
Falling on stairs etc  
Falling between levels  
Electrical Hazards  
Fire  
Flames and hot surfaces  
Collision and entrapment  
Explosions  
Position and operability of amenities  
Structural collapse and falling elements



# To reach a Score

HHSRS uses a formula to generate a numerical Hazard Score

Three sets of figures used -

1. Likelihood of an occurrence
2. Spread of possible outcomes
3. Weightings for severity of outcomes

# Assessment Procedure

1. Likelihood of an occurrence over **next 12 months** which exposes a member of the **vulnerable age group** to a Hazard

Expressed as a ratio - eg, 1 in 180,  
1 in 32, or 1 in 1,000

# Assessment Procedure

## 2. Spread of possible **harm outcomes**.

For example, while death is judged unlikely from a fall, there may be 10% chance of serious fractures, 31.6% chance of severe concussion, and 58.4% chance of severe bruising.

# Spread of Harm Outcomes

The most probable and other possible outcomes given as a percentage of the four main Classes of Harm ~

Class I - Extreme

Class II - Severe

Class III - Serious

Class IV - Moderate

# HHSRS Classes of Harm

## Examples of Class I ~

- Death
- Permanent paralysis below the neck
- Malignant lung cancer
- Regular and severe pneumonia
- Permanent loss of consciousness
- 80% or more burn injuries

## Examples of Class II ~

- Asthma
- Non-malignant respiratory diseases
- Lead poisoning
- Legionnaires disease
- Mild stroke
- Chronic confusion
- Loss of a hand or foot
- Serious fractures
- Loss of consciousness for days

# HHSRS Classes of Harm

## Examples of Class III ~

- Rhinitis
- Hypertension
- Sleep disturbance
- Gastro-enteritis
- Chronic severe stress
- Loss of a finger
- Serious puncture wounds
- Regular and severe migraine

## Examples of Class IV ~

- Occasional severe discomfort
- Occasional mild pneumonia
- Broken finger
- Slight concussion
- Moderate cuts to face or body
- Mental stress
- Severe bruising to body
- Regular serious coughs or colds

# HHSRS Formula

Class of Harm & Weighting			Likelihood		Spread of Harms (%)		Product
I	10,000	÷	L	X	$O_1$	=	$P_1$
II	1,000	÷	L	X	$O_2$	=	$P_2$
III	300	÷	L	X	$O_3$	=	$P_3$
IV	10	÷	L	X	$O_4$	=	$P_4$
Hazard Score					= $P_1 + P_2 + P_3 + P_4$		

# Example Hazard Rating ~ 1

Assessment of a fall out of a window to a ground floor room -

- Likelihood - 1 in 18
- Spread of Harm Outcomes -
  - Class I - 0% death judged very unlikely
  - Class II - 10% chance of serious fractures
  - Class III - 31.6% chance of severe concussion
  - Class IV - 58.4% chance of severe bruising



# Example Hazard Rating ~ 1

Class of Harm Weightings		Likelihood		Spread		
10,000	÷	18	×	0	=	0
1,000	÷	18	×	10	=	556
300	÷	18	×	31.6	=	527
10	÷	18	×	58.4	=	32
					Hazard Score =	1,115

# Example Hazard Rating ~ 2

Assessment of a fall out of a window to a fifth floor room -

- Likelihood - 1 in 180
- Spread of Harm Outcomes -
  - Class I - 46.9% chance of death
  - Class II - 31.6% chance of serious fractures
  - Class III - 21.5% chance of severe concussion
  - Class IV - 0% severe bruising very unlikely

# Example Hazard Rating ~ 2

Class of Harm Weightings		Likelihood		Spread		
10,000	÷	180	×	46.9	=	2,606
1,000	÷	180	×	31.6	=	176
300	÷	180	×	21.5	=	36
10	÷	180	×	0	=	0
				Hazard Score	=	2,817

# Banding of Scores

Score	Band	Category
5,000 or more	A	1
2,000 - 4,999	B	
1,000 - 1,999	C	
500 - 999	D	2
200 - 499	E	
100 - 199	F	
50 - 99	G	
20 - 49	H	
10 - 19	I	
9 or less	J	

# Cost to Society

As HHSRS focuses on potential health outcomes from hazards it is now possible to compare ~

- the cost of works to remove (or reduce) housing hazards

With

- the cost to society of not doing those works (eg, the costs from demands on the health service)

# Cost to Society

- 4.26 million (20%) of English dwellings are energy inefficient
- Cost to improve these estimated to be £66 million
- Cost to the health service to deal with direct health outcomes from exposure to the hazard Excess Cold is around £227 million per annum

Sources ~ EHCS Report 2006; CIEH/BRE Cost Calculator

# Cost to Society



## HHSRS Costs calculator



Number of dwellings **4,260,000**

affected group  
over 65

	likelihood 1 in É	Hazard %	Excess cold expected number	Annual cost to NHS
Class I harms	1013	31.6%	4207	£ 210,350,000
Class II harms	6957	4.6%	612	£ 12,240,000
Class III harms	1488	21.5%	2862	£ 4,293,000
Class IV harms	757	42.3%	5631	£ 563,100
<b>Total all harms</b>	<b>320</b>	<b>100.0%</b>	<b>13313</b>	<b>£ 227,446,100</b>

Estimated total cost of works where an incident is expected £ 66,471,809

Ratio remedial works costs/NHS annual costs (if >1, need more than 1 year for payback) **0.29**

# Some thoughts (1/2)

- The cost to the English health service is thought to be around 40% of the total cost to society.
- Each year, energy inefficient housing is costing English society at least 53 times as much as it would cost to put it right.
- Question is - Who should pay?



# Some thoughts (2/2)

- The principles and approach behind the HHSRS are transferable.
- The optimum 'home' environment is international. How it is achieved will vary depending on locality (geography, climate, culture, etc ...)
- Focusing on the structure (the building) is a 'local' approach. Focusing on potential threats to health and safety is an international approach.

# References etc

HHSRS publications ~

[www.communities.gov.uk/hhsrs](http://www.communities.gov.uk/hhsrs)

Cost Calculator ~

[www.cieh.org/policy/good\\_housing\\_good\\_health.html](http://www.cieh.org/policy/good_housing_good_health.html)

WHO Collaborating Centre on Housing Standards and Health ~

[www2.warwick.ac.uk/fac/soc/law/research/centres/whocc](http://www2.warwick.ac.uk/fac/soc/law/research/centres/whocc)

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