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A More Fitting Housing Design for the Ageing Population: A Case Study from Northern Ireland

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CONTENT

1. THE CHANGING PROFILE OF OLDER PEOPLE AND THEIR HOUSING

DESIGN FOR AGEING

"We know from the papers on demography that the profile of older people is changing.

Not only do we have an ageing population but certain groups are coming more into prominence. These include those who are very old, those with dementia, women, people who live alone and people from black and ethnic minority groups."

(Tinker, A. (1997). The environment of ageing.)

2. GLOBAL POPULATION TREND

The world is rapidly ageing:

- In 2006, the number of persons aged 60 and older was 650 million.
- In 2025, the number will be almost double: 1.2 billion people will be 60 and older.
- By 2050, there will be 2 billion people aged 60 and over in the world.

Our world is a growing city:

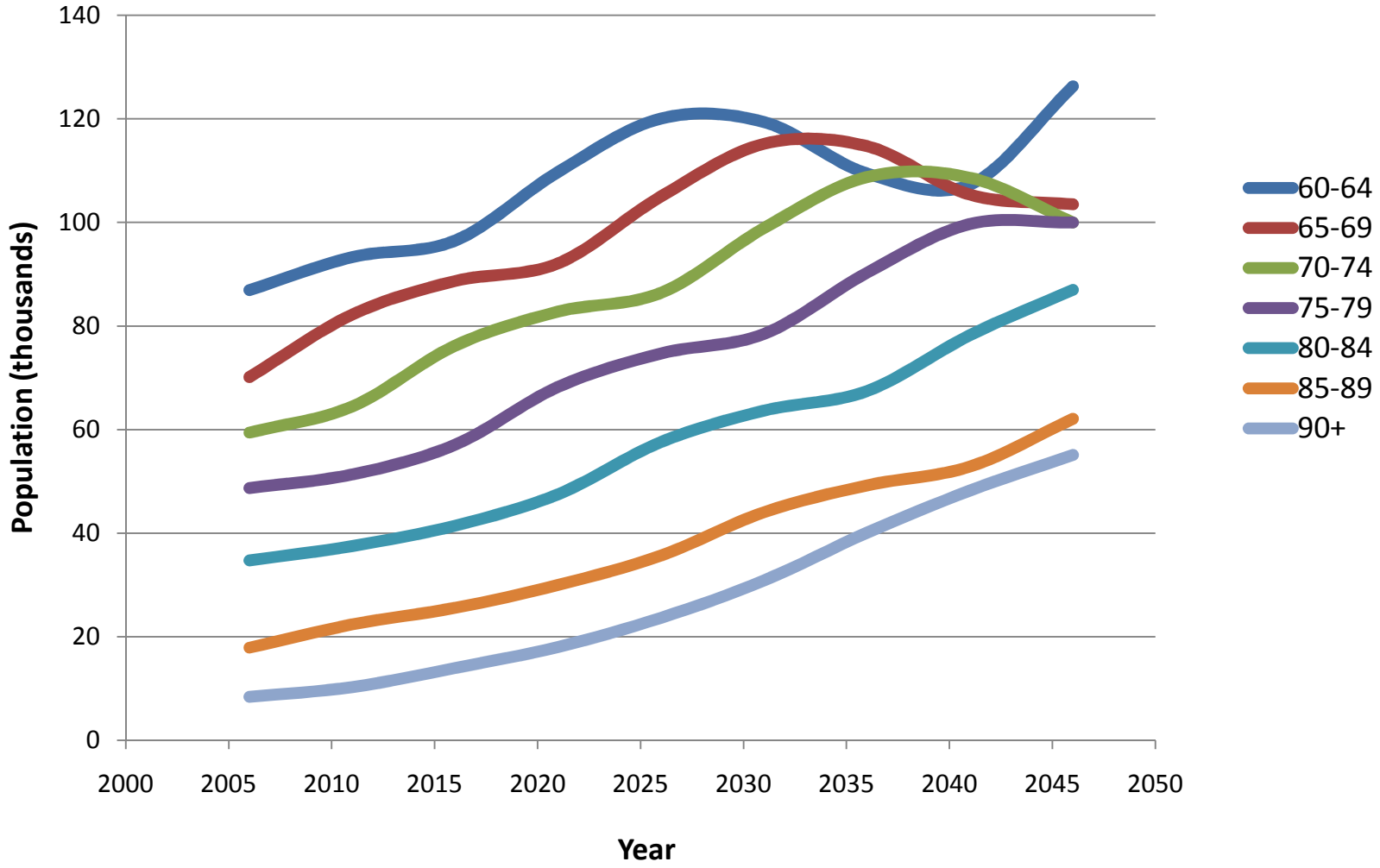
- In 2007, over half of the global population lived in cities. By 2030 about three out of five people will live in cities.

(World Health Organisation, 2008)

3. NORTHERN IRELAND POPULATION TREND

Projected Ageing Population for NI

(Office for National Statistics, 2008)



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Projected Population for NI

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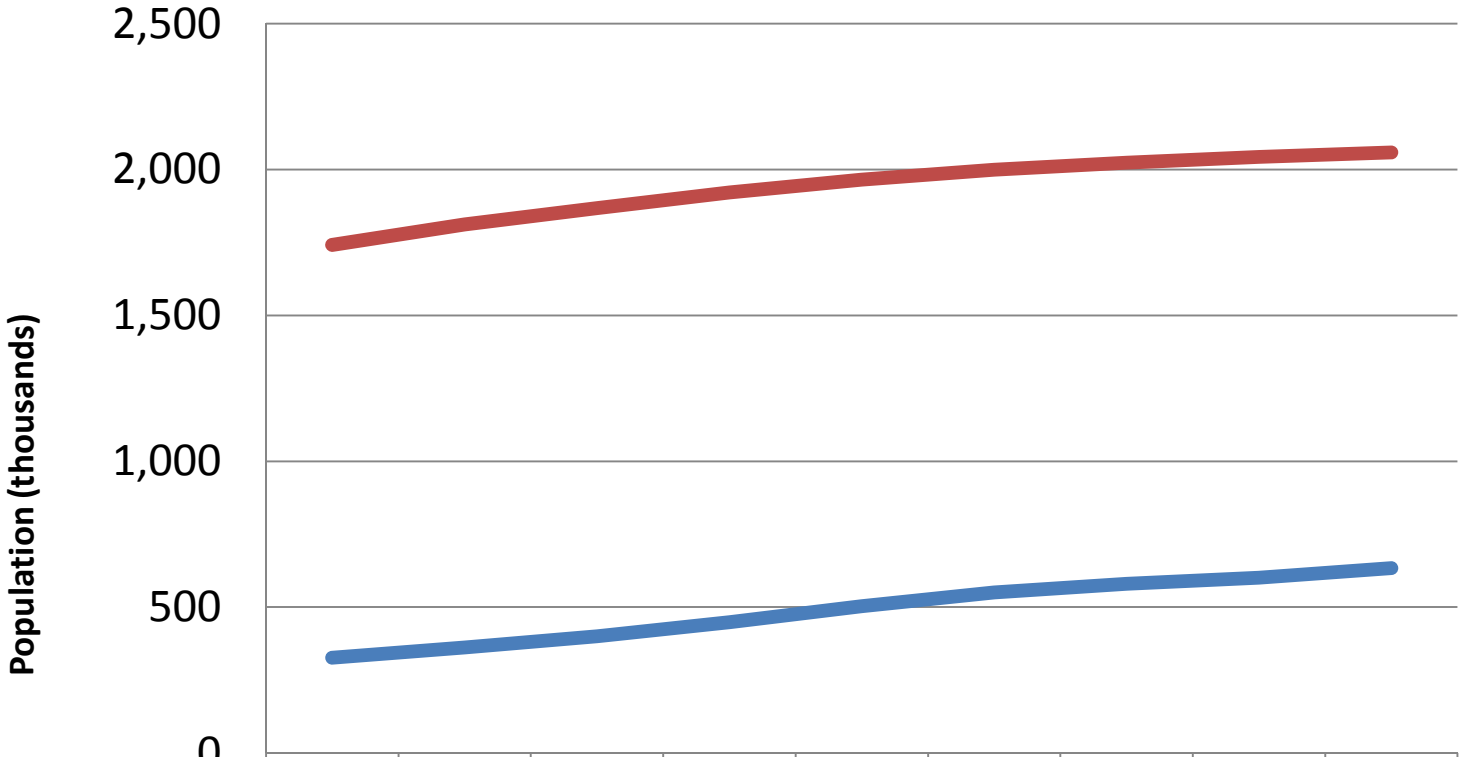


	2006	2011	2016	2021	2026	2031	2036	2041	2046
60+	326	362	400	449	503	551	580	600	634
All population	1,742	1,812	1,868	1,922	1,966	1,999	2,023	2,043	2,059

18.7% **30.8%**

4. THE IMPORTANCE OF THE PHYSICAL ENVIRONMENT

As a person's mental and also physical abilities decline, the importance of the physical environment increases.

The physical environment has a major role in compensating for deficiencies and in maintaining residual mental and physical abilities.

(Passini et al, 2000)

5. RESEARCH PLAN

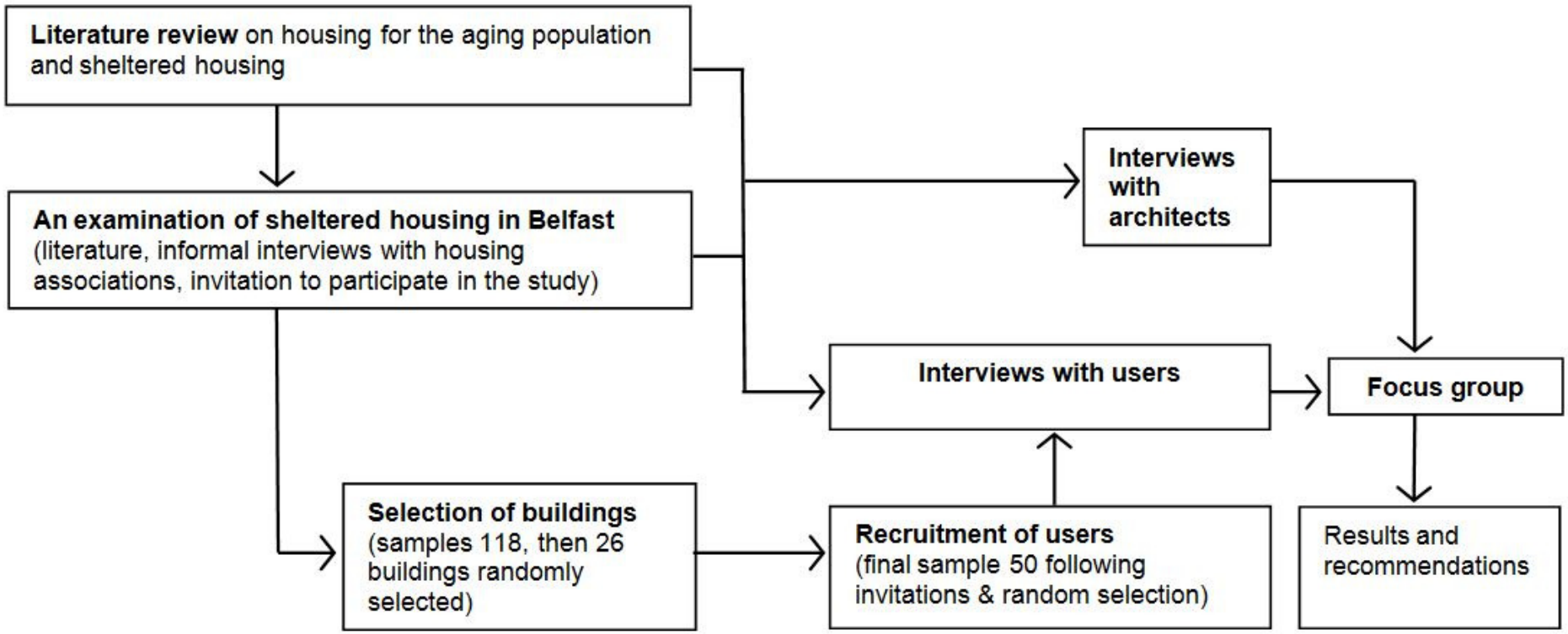
Aims and Objectives:

1. to establish the users' requirements and comfort needs at home;
2. to identify performance issues with current purpose-built and adapted accommodation using Post-Occupancy Evaluation; and
3. to develop design improvements through participatory processes.

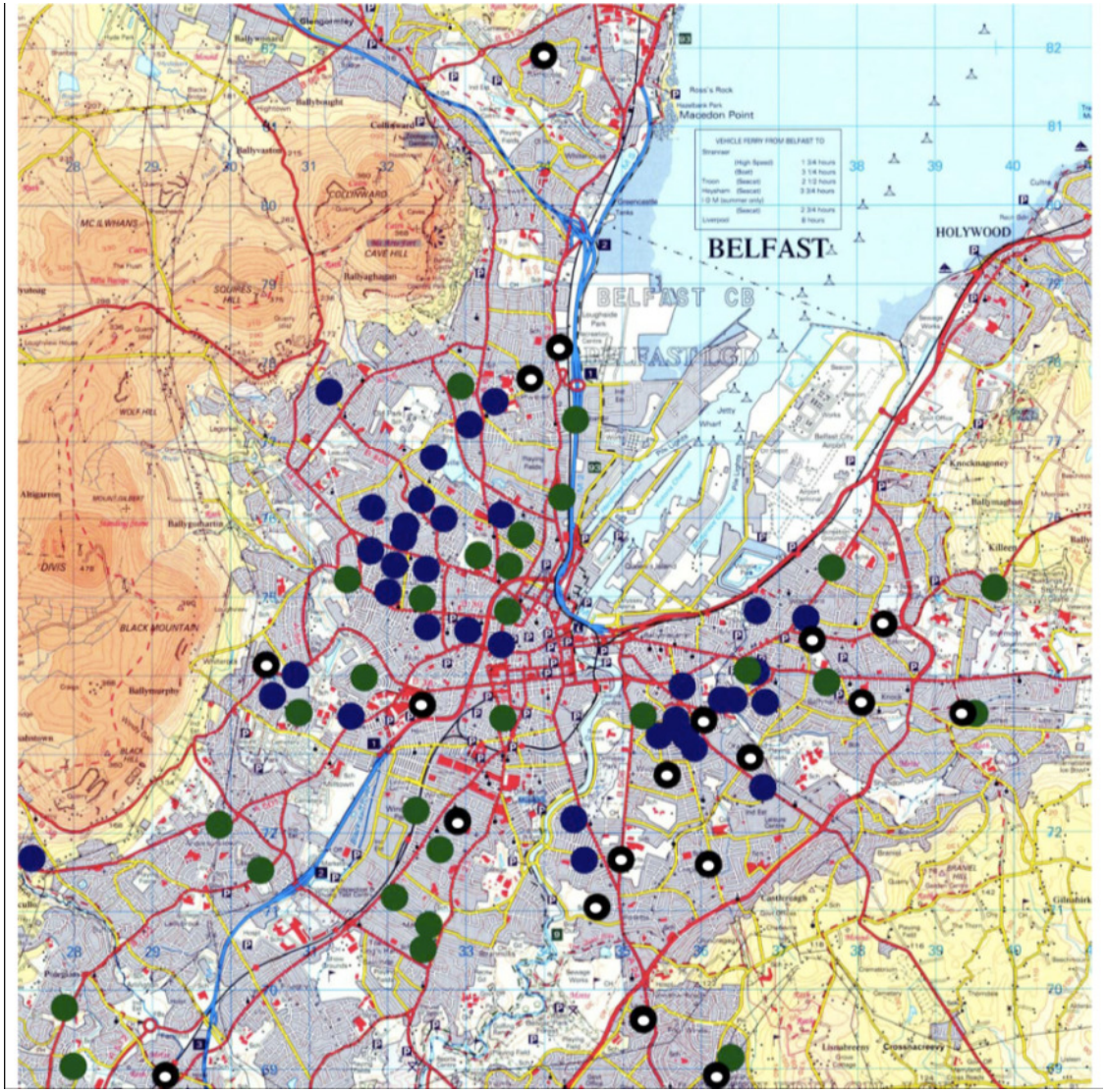
5. RESEARCH METHODOLOGY

1. Identification of a sample of typical housing association projects built or adapted for older people;
2. Identification and selection of target groups;
3. Structured interviews with target groups; (pilot & final)
4. Post-Occupancy Evaluation of selected case studies;
5. Focus groups with stakeholders.

5. RESEARCH METHODOLOGY



5.1. BUILDING THE SAMPLE



5.2. INTERVIEW WITH USERS

A
LOCATION DETAILS

B
PERSONAL DETAILS

C
USER SATISFACTION

C1
Overall Satisfaction

C2
Tenant Consultation

C3
Adaptation and Personalisation

C4
Household Routine Activities

C5
Accessibility (ease of reach or access)

C6
Where do you normally have your Breakfast?

C7
Where do you normally have your Lunch?

C8
Where do you normally have your Dinner?

C9
Where do you normally have your Tea/Coffee?

C10
Are the following spaces adequate to your needs in terms of size and layout?

C11
Are the fixtures and fittings (e.g. grab bars, sink, shower, cupboards) provided in the following spaces adequate to your ease of use?

C12
Is the furniture provided in the following spaces adequate to your ease of use?

C13
Are the following environmental factors Comfortable?

C14
Focus Groups

C15
Other comments

5.2. INTERVIEW WITH USERS

Gender	No.	Percent	Age Groups (63 - 98)	No.	Percent	Percent age group	Mean value	Std Deviation
Male	14	28	60-65	12	24			
Female	36	72	66-70	5	10			
Total	50	100	71-75	7	14			
			76-80	8	16	64	70.56	5.80
			81-85	10	20			
			86-90	5	10			
			91-95	2	4			
			96-100	1	2	36	86.22	4.73
			Total	50	100	100	76.20	9.31
Time lived at location			0.5 to 16 years				5.87	3.92
Time lived in sheltered housing			0.5 to 17 years				6.55	4.65

5.2. INTERVIEW WITH USERS

Questions	Age group	Responses				Total respondents	Comments
		Yes	Neutral-No opinion	No	No answer/Not applicable		
		by number of respondents and respective percentages					
Are you generally satisfied with your private accommodation?	63-80	28 (56%)	2 (4%)	2 (4%)	0 (0%)	32 (64%)	• small; no space for guests • not enough space; small bedroom • only 1 bedroom/no ventilation • too small
	81-98	17 (34%)	0 (0%)	1 (2%)	0 (0%)	18 (36%)	
	Total	**45 (90%)**	**2 (4%)**	**3 (6%)**	**0 (0%)**	**50 (100%)**	

5.2. INTERVIEW WITH USERS

Questions	Age group	Responses: Yes	Responses: Neutral-No opinion	Responses: No	Responses: No answer/Not applicable	Total respondents	Comments
		by number of respondents and respective percentages					
Do you feel you are consulted by the housing association on matters related to your comfort and safety?	63-80	22 (44%)	0 (0%)	10 (20%)	0 (0%)	32 (64%)	• we are given a chance to express opinion, ignored though • only for complaints • staff provide everything necessary • to discuss complaints • to report maintenance issues
	81-98	13 (26%)	0 (0%)	5 (10%)	0 (0%)	18 (36%)	
	Total	**35 (70%)**	**0 (0%)**	**15 (30%)**	**0 (0%)**	**50 (100%)**	

5.3. INTERVIEWS WITH 10 ARCHITECTS

1. In which way is designing housing for older people different from designing typical housing?

2. Which accessibility standards are used by architects here in NI when designing for older people? (Part M regulations and Lifetime Homes standards)

3. Do you normally consult future users on their accessibility/safety/comfort needs?

5.3. INTERVIEWS WITH 10 ARCHITECTS

- C: **Housing Association standards** with specific space standards. Try to create a **small community** using courtyards, communal facilities etc. The HA specify ratio of wheelchair rooms etc. All designed to standards
- D: **Lifetime Homes** aim to make it **adaptable**, providing ground floor facilities. Make some areas larger and **wheelchair friendly**.
- E: Many users are ambulant but then become wheelchair bound. Few steps, **wider turning spaces, wider corridors, wider doorways, fewer stairs**, possibly a lift and all easily accessible. Reach distances and heights are limited.
- I: Lifetime homes requires a **better understanding of mobility, circulation, security, access.** People aren't as flexible.

5.4. POST-OCCUPANCY EVALUATION

THE SCEAM MATRIX
The Sheffield Care Environment Assessment Matrix

(Parker C. et al, 2004)

There are 10 resident domains clustered into 3 groups:

Universal requirements for older people (privacy, the ability to personalise their surroundings, choice and control, and connection with the wider community);

Physical requirements (safety and health, support for physical frailties, and comfort);

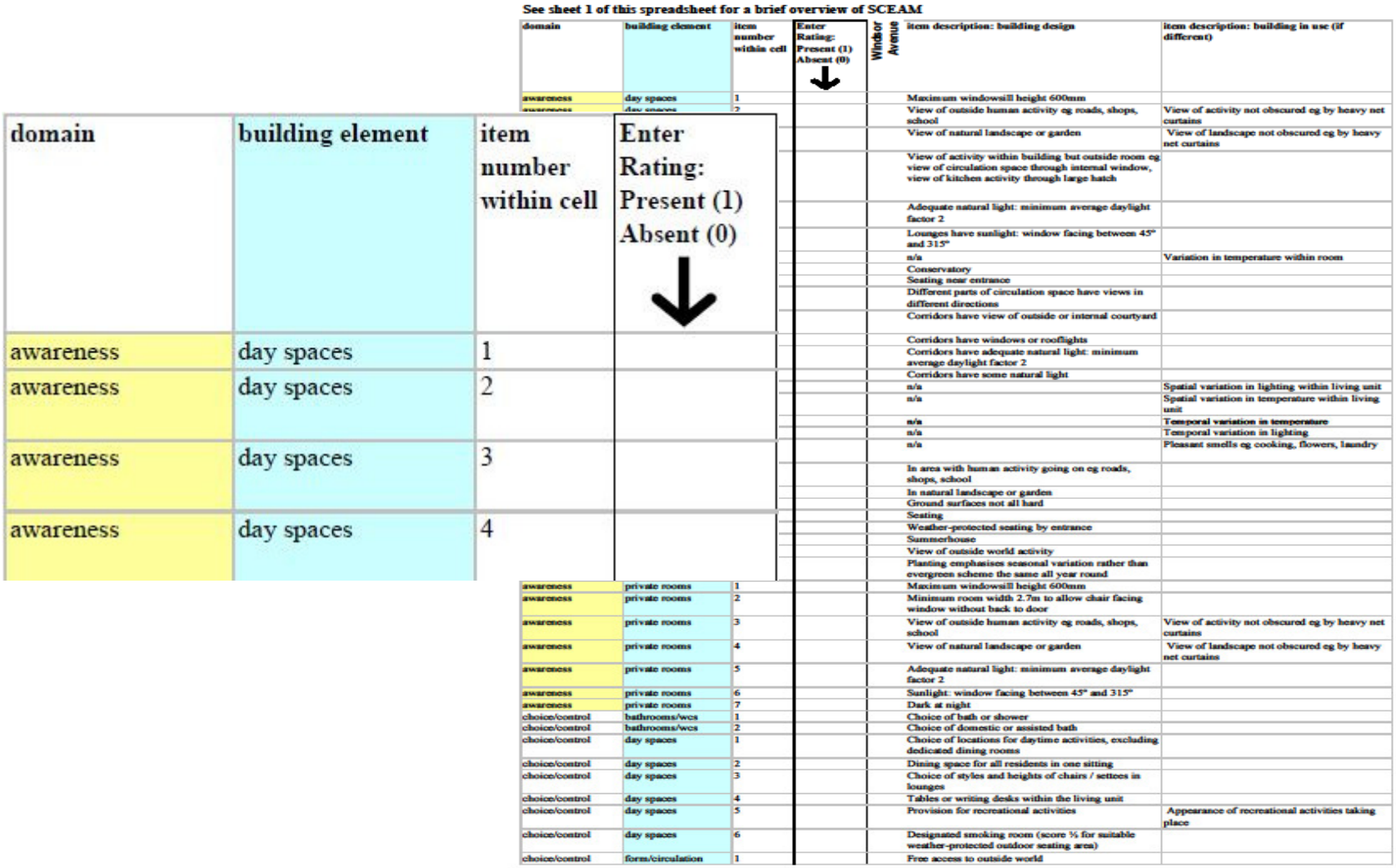
Cognitive requirements (support for cognitive frailties, awareness of the outside world, and a domestic, rather than an institutional environment, which is referred to as 'normalness and authenticity').

Over 300 features are used to evaluate these domains.

5.4. POST-OCCUPANCY EVALUATION

DOMAIN		BUILDING ELEMENT						
		location	outside spaces	building form and circulation spaces	day spaces	bathrooms and wcs	resident private rooms	staff spaces
residents: universal	privacy							
	personalisation							
	choice and control							
	community							
residents: physical	safety and health							
	physical support							
	comfort							
residents: cognitive	cognitive support							
	awareness of outside world							
	normalness and authenticity							
staff	provision for staff							

5.4. POST-OCCUPANCY EVALUATION



See sheet 1 of this spreadsheet for a brief overview of SCEAM

domain	building element	item number within cell	Enter Rating: Present (1) Absent (0)	Windsor Avenue	item description: building design	item description: building in use (if different)
awareness	day spaces	1			Maximum windowsill height 600mm	
					View of outside human activity eg roads, shops, school	View of activity not obscured eg by heavy net curtains
					View of natural landscape or garden	View of landscape not obscured eg by heavy net curtains
					View of activity within building but outside room eg view of circulation space through internal window, view of kitchen activity through large hatch	
					Adequate natural light: minimum average daylight factor 2	
					Lounges have sunlight: window facing between 45° and 315°	
					n/a	Variation in temperature within room
					Conservatory	
					Seating near entrance	
					Different parts of circulation space have views in different directions	
					Corridors have view of outside or internal courtyard	
					Corridors have windows or rooflights	
					Corridors have adequate natural light: minimum average daylight factor 2	
					Corridors have some natural light	
					n/a	Spatial variation in lighting within living unit
					n/a	Spatial variation in temperature within living unit
					n/a	Temporal variation in temperature
					n/a	Temporal variation in lighting
					n/a	Pleasant smells eg cooking, flowers, laundry
					In area with human activity going on eg roads, shops, school	
					In natural landscape or garden	
					Ground surfaces not all hard	
					Seating	
					Weather-protected seating by entrance	
					Summerhouse	
					View of outside world activity	
					Planting emphasises seasonal variation rather than evergreen scheme the same all year round	
awareness	private rooms	1			Maximum windowsill height 600mm	
awareness	private rooms	2			Minimum room width 2.7m to allow chair facing window without back to door	
awareness	private rooms	3			View of outside human activity eg roads, shops, school	View of activity not obscured eg by heavy net curtains
awareness	private rooms	4			View of natural landscape or garden	View of landscape not obscured eg by heavy net curtains
awareness	private rooms	5			Adequate natural light: minimum average daylight factor 2	
awareness	private rooms	6			Sunlight: window facing between 45° and 315°	
awareness	private rooms	7			Dark at night	
choice/control	bathrooms/wcs	1			Choice of bath or shower	
choice/control	bathrooms/wcs	2			Choice of domestic or assisted bath	
choice/control	day spaces	1			Choice of locations for daytime activities, excluding dedicated dining rooms	
choice/control	day spaces	2			Dining space for all residents in one sitting	
choice/control	day spaces	3			Choice of styles and heights of chairs / settees in lounges	
choice/control	day spaces	4			Tables or writing desks within the living unit	
choice/control	day spaces	5			Provision for recreational activities	Appearance of recreational activities taking place
choice/control	day spaces	6			Designated smoking room (score ½ for suitable weather-protected outdoor seating area)	
choice/control	form/circulation	1			Free access to outside world	

GUB Confidential 30/04/2008

5.4. POST-OCCUPANCY EVALUATION

domain	building element	item number within cell			private dwelling	#11_cairnshill fold_cairnshill	#28_dover street	#29_dundela view	#32_edenderry close	#35_Mount Vernon Lane	#36_orby Park	#47_school road_newtonbreda	#52_harris crescent	#87_conor house_windsor av	#91_euston street	#93_greer house
awareness	day spaces	1			1	1	1	1	1	1	1	1	1	0	1	1
awareness	day spaces	2			1	1	1	1	1	1	1	1	1	0	1	1
awareness	day spaces	3			1	1	0	1	1	1	1	1	1	0	1	1
awareness	day spaces	4			1	1	1	1	1	1	1	1	1	0	1	1
awareness	day spaces	5			1	1	1	1	1	1	1	1	1	1	1	1
awareness	day spaces	6			1	1	1	1	1	1	1	1	1	1	1	1
awareness	day spaces	7			-	-	-	-	-	-	-	-	-	-	-	-
awareness	day spaces	8			1	0	0	0	0	0	0	0	0	0	0	0
					100	85.7	71.4	85.7	85.7	85.7	85.7	85.7	85.7	28.57	85.7	85.7

Item description: building design	Item description: building in use (if different)
Maximum windowsill height 600mm	
View of outside human activity eg roads, shops, school	View of activity not obscured eg by heavy net curtains
View of natural landscape or garden	View of landscape not obscured eg by heavy net curtains
View of activity within building but outside room eg view of circulation space through internal window, view of kitchen activity through large hatch	
Adequate natural light: minimum average daylight factor 2	
Lounges have sunlight: window facing between 45° and 315°	IS THIS NECESSARY?
n/a	Variation in temperature within room
Conservatory	many have greenhouses/sheds
Seating near entrance	
Different parts of circulation space have views in different directions	
Corridors have view of outside or internal courtyard	
Corridors have windows or rooflights	
Corridors have adequate natural light: minimum average daylight factor 2	
Corridors have some natural light	
n/a	Spatial variation in lighting within living unit
n/a	Spatial variation in temperature within living unit
n/a	Temporal variation in temperature
n/a	Temporal variation in lighting
n/a	Pleasant smells eg cooking, flowers, laundry
In area with human activity going on eg roads, shops, school	
In natural landscape or garden	
Ground surfaces not all hard	
Seating	
Weather-protected seating by entrance	
Summerhouse	should switch this to garden shed
View of outside world activity	
Planting emphasises seasonal variation rather than evergreen scheme the same all year round	
Maximum windowsill height 600mm	
Minimum room width 2.7m to allow chair facing window without back to door	
View of outside human activity eg roads, shops, school	View of activity not obscured eg by heavy net curtains
View of natural landscape or garden	View of landscape not obscured eg by heavy net curtains
Adequate natural light: minimum average daylight factor 2	
Sunlight: window facing between 45° and 315°	
Dark at night	
Choice of bath or shower	
Choice of domestic or assisted bath	
Choice of locations for daytime activities, excluding dedicated dining rooms	
Dining space for all residents in one sitting	
Choice of styles and heights of chairs / settees in lounges	
Tables or writing desks within the living unit	
Provision for recreational activities	Appearance of recreational activities taking place
Designated smoking room (score ½ for suitable weather-protected outdoor seating area)	
Free access to outside world	
Unrestricted daytime access for unaccompanied residents to outdoor / garden spaces	
Areas for sitting in circulation space	
Unrestricted daytime access to all resident communal areas within living unit, and own private room	
n/a	Lift can be used by unaccompanied residents
Shop or vending machine for snacks, toiletries etc	
Resident facilities to make drinks eg kitchenette with kettle and fridge	
Resident laundry area	

5.4. POST-OCCUPANCY EVALUATION

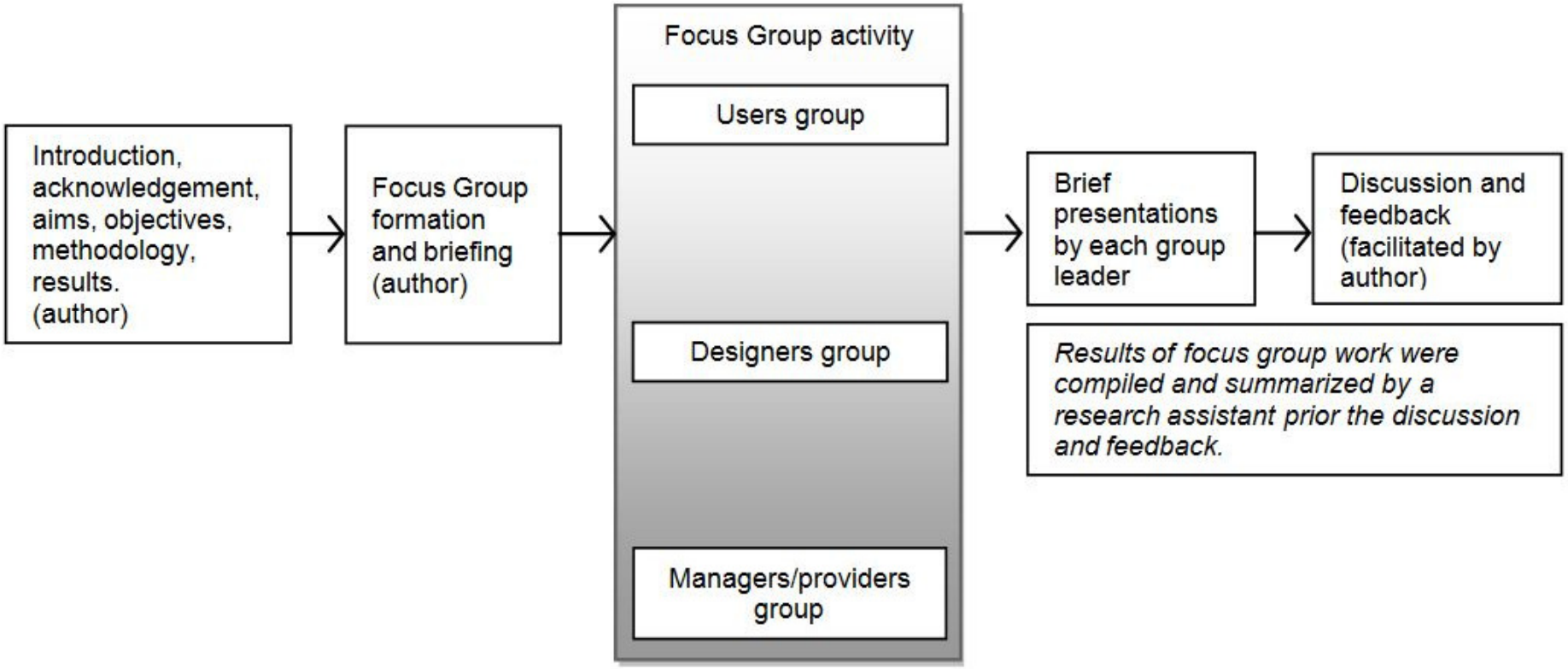
	Locations																										
Domain	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**Average**
cognitive	66	75	42	78	60	65	43	63	78	63	75	69	63	63	76	54	66	58	63	67	65	55	60	56	73	59	**64**
community	60	80	68	80	72	56	56	60	60	60	80	60	76	80	60	72	68	64	60	64	56	56	60	40	80	80	**66**
choice/control	84	83	69	91	94	50	52	61	88	61	86	64	87	79	76	76	91	67	86	83	86	57	71	41	79	83	**75**
awareness	87	88	65	88	86	60	73	62	90	64	88	73	91	83	87	74	93	76	80	81	70	78	72	56	85	83	**78**
privacy	87	93	68	92	84	66	80	79	94	79	93	79	90	89	77	78	95	64	88	87	69	67	87	72	90	87	**82**
personalisation	100	100	80	93	80	75	95	80	100	80	100	78	98	100	100	73	100	76	100	100	80	100	100	72	100	76	**90**
safety/health	89	95	96	97	91	88	93	97	93	94	95	90	97	97	94	91	99	67	89	86	98	89	96	88	90	97	**92**
comfort	100	100	90	100	100	80	87	79	100	79	100	88	100	100	83	63	100	100	100	100	98	73	92	90	100	100	**92**
normalness	100	91	78	98	95	90	106	95	108	95	91	104	93	83	108	82	100	97	98	100	105	96	107	87	96	79	**95**
Average	**86**	**89**	**73**	**91**	**85**	**70**	**76**	**75**	**90**	**75**	**90**	**78**	**88**	**86**	**85**	**74**	**90**	**74**	**85**	**85**	**81**	**75**	**83**	**67**	**88**	**83**	
Purpose Built or Adapted	**PB**	**PB**	**PB**	**PB**	**PB**	**PB**	**PB**	**PB**	**PB**	**PB**	**PB**	**PB**	**A**	**PB**	**PB**	**PB**	**A**	**A**	**A**	**A**	**PB**	**PB**	**PB**	**A**	**PB**	**PB**	
Respondents nos	4	2	**3**	4	1	**2**	1	3	2	1		1	1	2	3	**1**	1	**1**	1	2	2	1	5	**2**			
Category	2	2	**3**	2	1	**1**	1	1	1	1	1	1	0	1/2	0	**2**	2	**2**	2	2	1	1	1	**2**	1	1	
Accommodation age	16	4	**5**	13	7	unknown	2	16	9	16	unknown	unknown	4	unknown	unknown	**25**	4	Victorian		2	unknown	unknown	5	unknown	1	5	
building height	2	3	**2**	3	1	**2**	1	1	1	2	1	2	2	3	2	**2**	3	**3**	2	2	3	1	3	**3**	2	3	
number of rooms	30	40	**46**	40	6	**11**	6	22	19	38	12	4	10	43	15	**30**	19	**7**	8	8	16	4	18	**18**	32	38	

5.5. FOCUS GROUP WITH STAKEHOLDERS

Workshop objectives

- To discuss the findings of the study with stakeholders.
- To assess users, designers, policy makers, and housing providers views of housing needs of older people in Belfast and Northern Ireland.

5.5. FOCUS GROUP WITH STAKEHOLDERS



5.5. FOCUS GROUP WITH STAKEHOLDERS - Users

- new sheltered housing should be located somewhere near where future tenants used to live.
- kitchen windows need to be more accessible and water taps should be user-friendlier.
- floors and appliances that can be easily cleaned and maintained.
- more spaces in private rooms to be able to move around more freely.
- efficient color schemes to denote change, and also large fonts for signage.

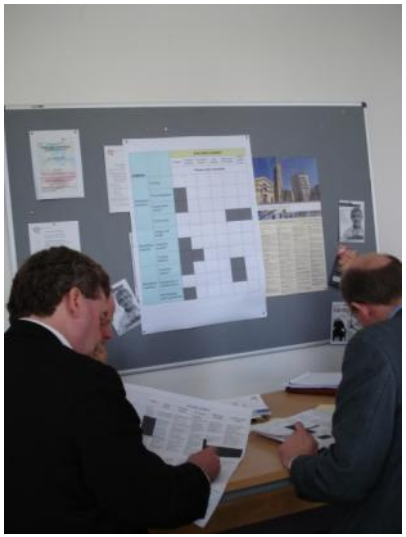
5.5. FOCUS GROUP WITH STAKEHOLDERS - Designers

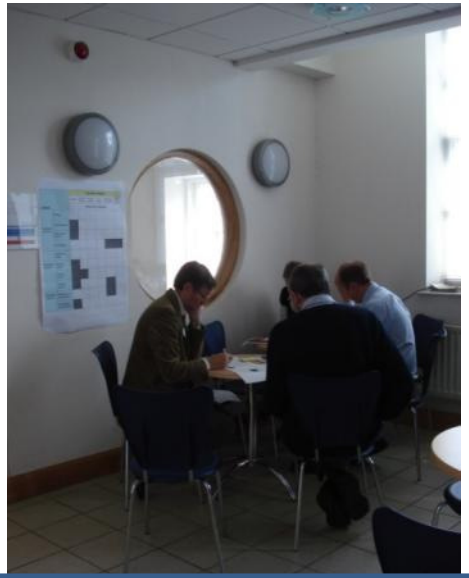
- spaces that ensure privacy at the neighborhood level.
- circulation spaces should have landmarks for wayfinding.
- easily accessible spaces to clean and move around, the ability to adjust units, the ease of opening and cleaning of windows, and more flexible storage space.
- space for carers and supervisors.
- low maintenance gardens.
- lower window sills in private spaces to allow views to the outside from the bed.

5.5. FOCUS GROUP WITH STAKEHOLDERS - Managers

- housing that is secure by design.
- small items such as bird feeders in gardens encourage mental stimulation.
- more opportunities for older people to interact with, touch and smell the landscape in the garden (spaces such as conservatories are safe and offer views to the outside world).
- the use of colors to support and enhance mood and wellbeing, but also to differentiate between storeys, areas and building components such as doors.
- pleasant lighting levels and task lighting for reading.
- easily operated temperature controls should be provided.

5.5. FOCUS GROUP WITH STAKEHOLDERS


6. SUMMARY

- Interviews with tenants revealed that there was an overall satisfaction with size and layouts of circulation areas, but less with the communal facilities. Issues raised included location of cupboards, ease of use of fixtures and fittings such as water taps, and furniture. There was also some dissatisfaction with corridor layouts, alarm systems, noise, and thermal comfort.
- Cognitive and Community domains score low, while Comfort, Safety/Health, and Personalisation have the highest rate. Interview survey pointed at the need to improve user satisfaction through better accessibility, ease of use and more comfort.
- Focus groups revealed that domains and building elements are perceived and evaluated differently by users, designers and managers, and that users are still seeking better homes!

7. FURTHER RESEARCH

- Aspects affecting comfort as perceived and experienced by the occupants but also as observed during environmental evaluation and their correlation is needed.
- Physical measurements of indoor air quality indicators or other quantitative methods.
- Quality of life of older people using objective measurements through a combination of environmental evaluation and neuroscience.
- Research using digital tools to carry out behavioural mapping and simulation, and to monitor comfort indicators.

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