Kingston University London

Thomas Pocklington Trust
Housing and support for people with sight loss

Making an entrance: Colour, contrast and the design of entrances to homes of people with sight loss

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Cover Photograph of door handle and door courtesy of Laidlaw

Contents

Executive summary

The aim of the study was to identify practical solutions to the most common problems that people with sight loss have when entering or leaving their home. The research findings offer ideas, advice and guidance for architects and developers, local authority funders, occupational therapists, housing providers and home improvement agencies on what action they can take to improve accessibility in design of entrances and support the independence of people with sight loss.

The research team carried out an extensive 37 question survey and gained the views and experiences of 91 people with sight loss. The team obtained information from eighteen local authorities, created a database of relevant manufacturers of products for domestic entrances and doorways, and held meetings to share knowledge with seventeen interested companies that design, make and supply stair nosing, flooring, doors and frames, signage, lighting, locks etc. The researchers also held an Advisory Panel workshop to elicit a wide range of opinions and expert views from professionals and people with sight loss.

Summary findings

- When asked to suggest design improvements, 84.3% of visually impaired respondents wanted greater contrast for the keyhole and lock on the door, and 33.3% wanted a stronger door colour. A standard layout for handles and locks, better external lighting and handrails were also mentioned as important.

- 74.6% of survey participants had difficulty adjusting to lighting changes between the exterior and interior of the entrance. 41% found most door furniture difficult to see and 25.4% identified trip hazards around their entrance.

- The fifteen critical areas or items selected for inclusion in the Checklist were: Front door; door handle; keyhole and lock; walls; lighting; door number; landmark; steps; handrail; ramp; flooring; paving; glass doors; navigation lights; and lift buttons.

- The research team met with companies from the product sectors (e.g. door locks, flooring). The discussions and evidence from the project

have led some companies to develop products in order to offer new or improved solutions e.g. step nosing; door signs.

- The study identified numerous low cost, effective solutions that can be easily installed as minor adaptations to existing homes or designed as part of refurbishment or new build schemes.

In comments from the survey of visually impaired people and access experts, it was clear that people were often expected by landlords or local authorities to make their own individual adaptations to their home. At one end, some people now have the opportunity to invest in high-tech and personalised systems, while others lack the resources and/or information on what is available. New levels of sophistication in entry systems are difficult to negotiate, especially for people coping with several disabilities, such as sight, touch and hearing loss.

People with vision loss would like more control over their own home and new technology offers new types of solutions, especially (but not only) for younger age groups. The most vital message here is the need for proven accessibility and clarity of information; for example touch screen technology without tactile display buttons can be very difficult to use. An entrance intercom has to be tactile, visually highlighted, at the right height and with defined edges to access panels.

Visual or audible cues are important. Designers often think about the use of sensors but it is not easy for visually impaired people to understand the different types. A large fob or pocket device that vibrates when a front door or a front gate is reached would be useful. A transmitter and receiver that signal when you get near your home were reported to be available for installation. A hand-held receiver would buzz loudly or vibrate a fob when near the gate or door.

Consistency is also important; for example, having the same height and location for all keyholes or swipe card entry points in a building. A system has to be secure and to let you know who the callers are with both visual and audible information. Audible and sensory confirmation of a doorbell ringing, with a feedback loop, is vital.

Some participants expressed the view that mechanical things are less likely to break, are cheaper and require less maintenance than technological

devices that challenges their confidence. Visually impaired people are wary of things going wrong and, for example, may not be keen to even upgrade their mobile phones. Finding an emergency button in a lift that may have broken down or approaching automatic doors without knowing if they are open or closed can cause great stress and panic.

Assistive technology needs to be simple and easy, so that visually impaired people can be involved in fitting or assisting with installation. More detailed information and greater awareness of what is available to the visually impaired community would assist in individual adaptations, new build developments and large scale property refurbishment schemes.

Further information

In addition to this final report, the research publications include a summary Research Findings and a Checklist leaflet with 'hints and tips' to highlight specific issues and solutions. A revised version of Thomas Pocklington Trust's Good Practice Guide 4, 'Housing for People with sight loss: A practical guide to improving existing homes' will include new guidance from the project. The publications are available from:

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Copies of this report in large print, audio tape or CD, Braille and electronic format are available from Thomas Pocklington Trust.

1 Project overview

It takes a certain level of contrast, together with strategic use of colour and lighting, to enable people with sight loss[1] to understand and confidently navigate the environment around them. Simple, low cost and effective solutions based on knowledge of contrast application can assist people who have visual impairment to live a more independent life. Coupled with the correct lighting to emphasise the visual field, and direct attention, colour and contrast can help to reveal the physical surroundings of a home.

In home entrances, schemes for flooring, furniture, windows and wall colour are some of the elements to providing safe orientation and navigation. Entrances to homes can present particular difficulties, with extremes in lighting levels that create major hazards and affect adaptation of the eye to the different levels.

Thomas Pocklington Trust provided funding for Kingston University London to carry out this study into home entrances and approaches, with a view to investigating how they can be made more accessible to people with sight loss. In addition to the research report and summary Research Findings, the study has resulted in a Good Practice Guide and a Checklist of key items for use by professional and local agencies involved in providing accessible housing for older people and those with sight loss.

This will help local authorities, home improvement agencies, architects, occupational therapists, interior designers, handyperson services, home improvement agencies, flooring manufacturers and materials suppliers to access information and practical guidance on the critical issues for these areas in domestic buildings and interiors.

Questions such as “How can contrast be used?”, “Where can it be used?” and “What are the most useful things that can be done in entrance areas, both externally and internally?” have been answered in the study and provide an important outcome of the work. The project aims have been achieved with the input, advice and support of all kinds of home owners and tenants with low vision; as in all the Design for Disability research

[1] In this report, the terms ‘sight loss’, visual impairment’ and ‘low vision’ are used interchangeably

conducted by Kingston University London, the users have been centrally involved.

Project aims and objectives

- To assess problems people have with entering and exiting their homes
- To identify key things that make a difference to improving independence and accessibility for people with sight loss on entering and exiting the building
- To generate a Checklist for people to use to gain further assistance, advice and funding for essential improvements
- To develop a range of additional points from an expert panel on ways to promote and support independent living for people with sight loss
- To highlight views, experiences and ideas and to produce guidance to aid local authorities, architects, designers and home advisors
- To provide advice to assist funding from Disabled Facilities Grants (DFG) to support minor adaptations and improvements

Importance of colour, contrast and lighting

Contrast is the difference between an object, text or element and the object or adjacent background against which it is observed. In technical terms, it is the difference between the Light Reflectance Values (LRV) of two different but adjacent surfaces (Dalke, 2011).

Contrast is an essential tool for making text legible, information accessible, products usable, and elements of the built environment visible, for people with low vision (Dalke, 2009). If used in the correct way it can empower people with sight loss and enable confident interactions with the world. A strong visual contrast between adjacent surfaces and materials in everyday things, such as a door in a wall, or handle on a door helps people with sight loss to be independent in their daily lives.

Lighting provides the means to perception of all these elements, so it is important to catalogue current practice (Bright, 1997). It is a fundamental principle of human perception that we need to see the world as a series of edges or boundaries where an object or feature is viewed on or next to something else. That ‘something else’ may be near or far away. The use of contrast in products, services and buildings is now considered so important that it is a requirement for many recommendations on accessibility. Despite this, the important role that contrast plays in visual perception by people with visual impairment is often ignored by a wide range of professionals.

Certainly, little accessible guidance has linked many of these factors for use by professionals who provide support for domestic spaces. Many building projects are executed without sufficient awareness of the importance of lighting and contrast at thresholds. Similarly, guidance for new modes of lighting and types of illumination has not been collated in a way that can be readily accessed by developers of new homes and those responsible for refurbishment and home improvements.

One problem that is encountered by people with sight loss is that of adaptation: the time taken for the eyes to adapt to a sudden change in darkness or lightness. The ability to navigate and judge spaces can be critically affected by extreme or sudden changes in lighting levels, which create a serious impediment for people with low vision. For example, lighting levels in entrance halls should help the eye adjust from exterior daylight levels to interior illumination and there are similar requirements needed at any transition points between internal spaces. Avoiding extremes of light changes that can disable or cause accidents is a major requirement in designing for people with low vision. Artificial lighting will of course affect the appearance of certain contrast levels. The design of thresholds of buildings and doorways present many problems to the resident or visitor with low vision.

The variability of lighting and natural light as well as the changes throughout the seasons present huge hurdles in eye adaptation. The type

of light sources used in environments affects perception. The spectral power distribution of daylight changes throughout the day and provides a source of good colour rendering that affects our sense of well-being, work satisfaction and physiological and psychological states. Seasonal variations can greatly affect transition spaces from exterior to interior. High levels of lighting dramatically enhance visibility but have been shown to disable people further (Dalke, 2010).

The lighting needed in some living environments requires around 300 lux for elderly people with sight loss to function reasonably confidently in most daily tasks (IESNA, 2007, Dalke, 2010, 2012). *(N.B. lux is the SI unit (International System of Units) of illuminance. It is equal to one lumen per square metre e.g. 1,000 lumens over 1m^2 is equal to 1,000 lux, while 1,000 lumens over 10m^2 is equal to a dimmer lux of 100)* (Wikipedia contributors, 2013). This is higher than the generally recommended levels of interior lighting in the UK. The placement and adequate provision of domestic lighting is even more important for its contribution to comfort, productivity, and quality of life for people with low vision. Bright lighting badly positioned towards the eyes can cause glare and this often occurs in large entrances of buildings.

Colour can contribute immensely to the aesthetic appeal of an environment. However, in tests carried out it has been noted that a large number of ocular diseases also present varied colour vision loss problems, making things like colour coding difficult. This required further investigation through pilot studies with participants with vision impairment in their home entrances. The interaction between colour, contrast and lighting with a range of colour temperature luminaires was investigated.

For all types of home entrances, practical advice is needed which can be followed by a wide range of supporting bodies, from relatives to construction personnel. To meet the demand for knowledge in this rapidly growing area, the research and resulting Checklist explains how best to use contrast in elements of the building entrance and internal spaces such as hallways. A consistent and accurate use of contrast and colour can

make a significant difference to visibility of these spaces (Dalke, 2009, 2011, 2012). Contrast has now been demonstrated to help 93% of the registered visually impaired population see objects, interact with products and navigate environments more confidently.

Current guidance on ways to evaluate and specify lighting and contrast is confusing. One challenge for this study was to communicate how to translate the existing general information about colour, contrast and lighting into specifically the design of entrances and exits in domestic environments and note the ways accessibility could be achieved.

2 Financial support for home adaptations

In the first project meetings with tenants of Thomas Pocklington Trust, one of the main concerns over the affordability of any design interventions for home entrances and exit areas was raised. One tenant with very little residual vision had the following comment to make, which showed us the difficulties that people face every day in their housing needs and cannot address or get help with:

> *'My stairs at the top where my flat is in Shepherds Bush, are not deep enough for my boy's buggy to rest while I open my door - so I have to leave him at the bottom inside the front entrance, go up and open the door then go down to fetch him, then go down again to get the buggy'*

Although this person's requirements were not focused on the research aims of this study, understanding colour, contrast and lighting in entrances, it did highlight the issue of how do people find out about how they can access help and support to make adaptations to their home. The research team immediately investigated what kind of local funding support is available for people with low vision. This led the team to carrying out research into Disabled Facilities Grants (DFG) and local authority guidance and discussions.

Fig 1 Disabled Facilities Grants

WWW.OXFORD.GOV.UK

The Disabled Facilities Grant (DFG) is a means-tested grant offered by local authorities. DFGs are available in England, Wales and Northern Ireland. In Scotland, residents should contact the social services department of their local council for information on any grants that may be available (Directgov, 2012). The grant is available to disabled persons for adaptations to provide better facilities and freedom of movement in and around their home (Oxford City Council, 2011). If adaptations are necessary and the resident is eligible for support, a DFG can provide help with the cost in order to support them to continue living in their home. The adaptations can be as simple as putting in a handrail on stairs or installing

a ramp to the front door (London Borough of Tower Hamlets 2012). It can also help with bigger works like stair-lifts or assistive showers.

The Directgov website lists other acceptable types of work:

- Widening doors and installing ramps
- Providing or improving access to rooms and facilities
- Improving or providing a heating system
- Adapting heating or lighting controls to make them easier to use
- Improving access to and movement around the home to enable the applicant to care for another person who lives in the property, such as a child

There is a maximum amount for a DFG and the grant is means-tested, so the resident may have to contribute towards the works. In cases of hardship, additional discretionary funding may be available.

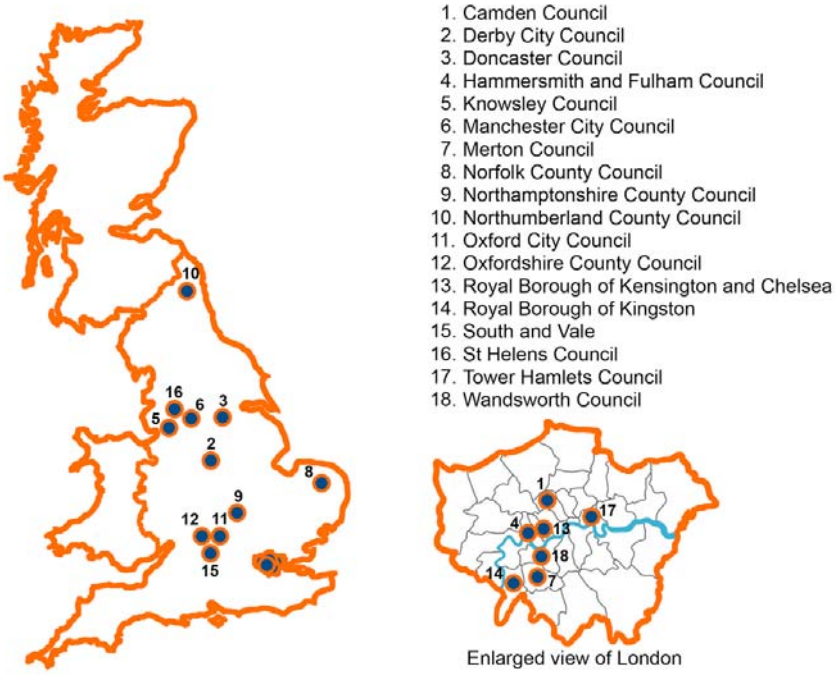
It is possible to apply for a DFG if:

- You or someone living with you is disabled
- You are the owner/occupier/landlord
- You are a tenant with the landlord's permission to apply for a DFG
- Are on a low income, a means-tested benefit or receiving Working Tax Credit

These grants are not normally available to council tenants, as other sources of funding are used to adapt council or social housing homes.

The local authorities that provided helpful information and participated in the research are shown in Fig 2.

Fig 2 Participating local authorities



The local authorities were each asked about their current DFG provision for people with sight loss. From the seven councils that provided data, the following points summarise their collated responses:

- Minor adaptations (under £1,000) are arranged by Sensory Impairment Workers in Social Services
- Financial support is provided for independent living, support rehabilitation and mobility training
- All councils provide means-tested DFGs up to £30,000. None have been granted to people with sight loss in last 12 months
- Unable to enforce landlord to adapt property but use Housing Act 2004 to assess 29 risks from hazards; also the Equality Act

Appendix A provides further details of the responses given by the seven councils who provided information on DFGs.

3 Survey approach and results

With the help and input from people with visual impairment, a questionnaire was developed to find out:

- What experiences do people have when coming in or going out of their home?
- How can the design of entrances and exits be improved?

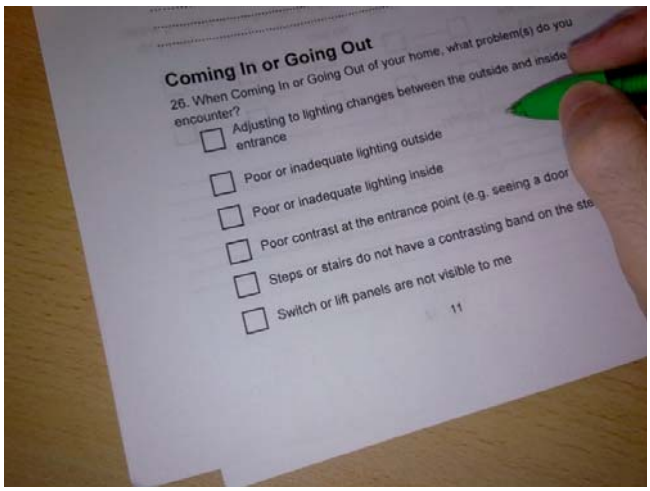
Three survey formats were tested with prospective participants:

- Hardcopy (paper format to be completed at home) – See Appendix B
- Survey Monkey (online) – See Appendix C
- Word document (email and on screen)

There were 37 questions and it took approximately 15-20 minutes to complete the survey. The questionnaire could be filled in with the help of a friend or family member. Individual responses were confidential to the research team and personal information was deleted at the end of project and subject to the Data Protection Act

Fig 3 Screen example – Survey Monkey

Fig 4 Hard copy page example



“Doing the survey made me realise that if doors contrasted with walls I could see my own door”

Questionnaire respondent

Finding survey participants

The survey participants were found via the following online channels:

4sight, Action For Blind People - London & South East, Andover VIPS, Berkshire County Blind Society, BucksVision Community Action – Fareham, Disability Initiative East Sussex Association of Blind and Partially Sighted People, East Sussex Vision Care ENRYCH – Berkshire, Guide Dogs For The Blind - Kent and East Sussex District Team, Guide Dogs For The Blind - Oxfordshire, Buckinghamshire, Berkshire & West London, Guide Dogs For The Blind - Southern Counties District Team, Guide Dogs for the Blind - Surrey & West Sussex District Team, Hampshire Advocacy User Group for the Blind & Partially Sighted, Hastings & Rother Voluntary Association for the Blind, Impact Advocacy Service - West Sussex, Impact Workability - West Sussex, Inspire Community Trust, International

Glaucoma Association - Registered Office, Isle of Wight Advocacy Trust, Kent Association for Spina Bifida and Hydrocephalus, Kent Association for the Blind, Living Paintings, Macular Disease Society, Head Office, Mental Health Advocacy Service, Milton Keynes Centre for Integrated Living, National Blind Children's Society, Normandy Community Therapy Garden, Open Sight, Portsmouth Association For The Blind, RNIB - Head Office, RNIB - Peterborough Ergonomists, SeeAbility, Sense, South Of England Advocacy Projects – Portsmouth, Southampton SightSportAble, Stickler Syndrome Support Group, Surrey Disabled People's Partnership, Treloar Moving On Programme, White Lodge Centre, Website testing for adaptive software for VIPs, SAVI newsgroup, Surrey coalition for disabled people, British Retinitis Pigmentosa Society, Talking Newspaper Association of the UK, Local talking newspaper for Farnham, Clarity employment for blind people, Facebook.com/visuallyimpairedpeople, RP fighting blindness facebook page

In addition, some of the supporting local authorities introduced the survey to local visually impaired residents. The following organisations forwarded the survey to their members:

- Cane But Able Ltd.
- eSight
- Infrastructure Network for Disability Info. (INDI) South East
- Kingston Association for the Blind
- Kingston Talking Newspaper
- Milton Keynes Centre for Integrated Living
- Oxfordshire Association for the Blind
- Oxfordshire Unlimited
- RNIB Innovation, Inclusion and Development
- RNIB Web and Digital Marketing
- Surrey Association for Visually Impaired (SAVI)

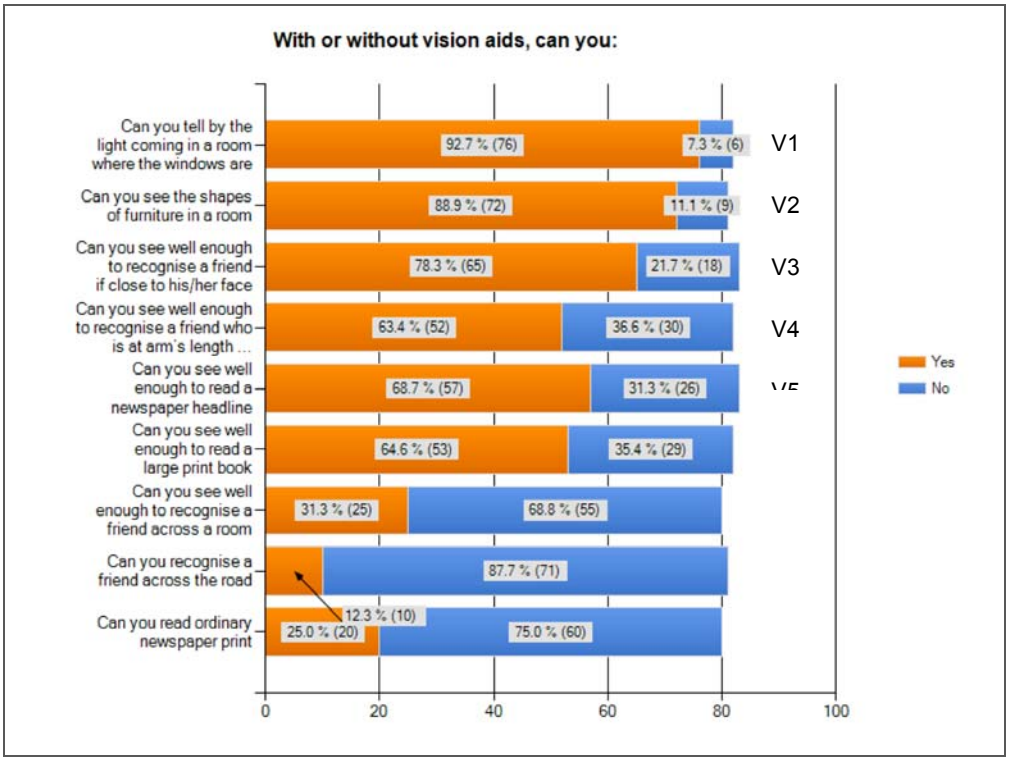
Survey Results

The survey was completed by 91 respondents. Detailed results are shown in Appendix D.

Respondent characteristics

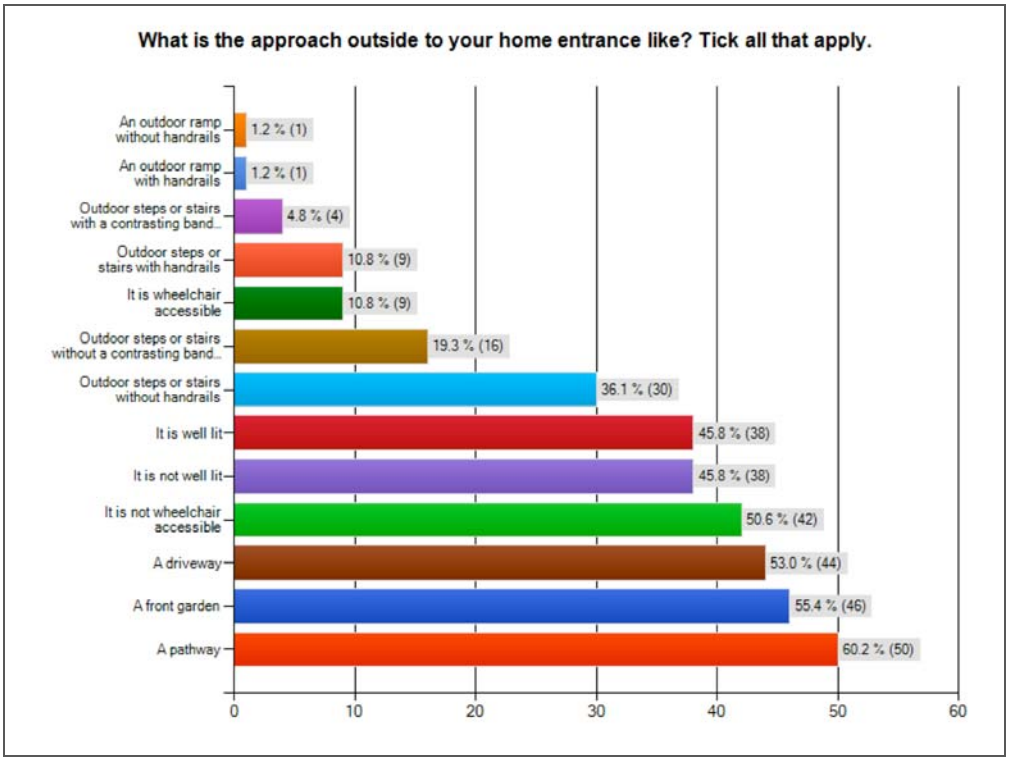
- 67% female, 33% male
- 40.2% age 36-55, 30.5% age 56-75
- 25.6% with central vision loss
- 44.9% with peripheral vision loss
- 42.3% with general vision loss
- 50.6% with colour vision problems
- 53.7% registered blind, 36.6% registered partially sighted
- 73.1% use a cane as a vision aid
- 70.5% use assistance from another person as a vision aid
- 28.8% have another mobility disability
- 43.2% live in semi-detached housing, 17.6% in flats
- 90.5% have a personal main entrance, 28.1% a shared entrance

Fig 5 Visual ability



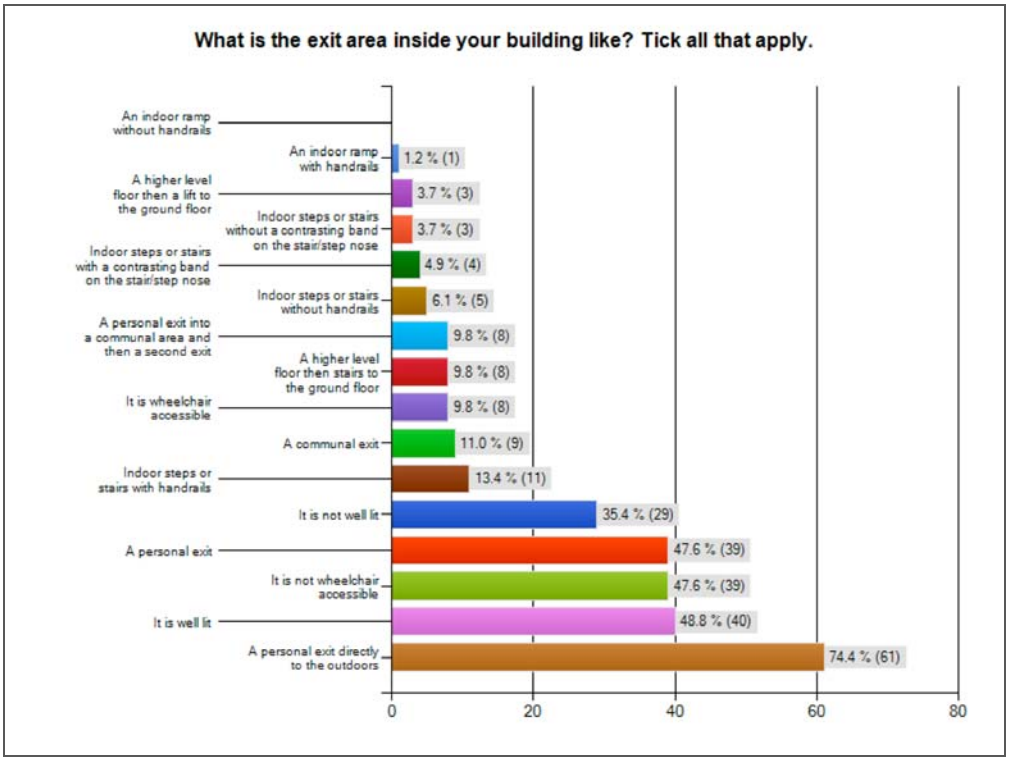
- 36.3% cannot see well enough to recognise a friend at arm's length
- 7.3% have no perception of light

Fig 6 Approaches to the home entrance and exit



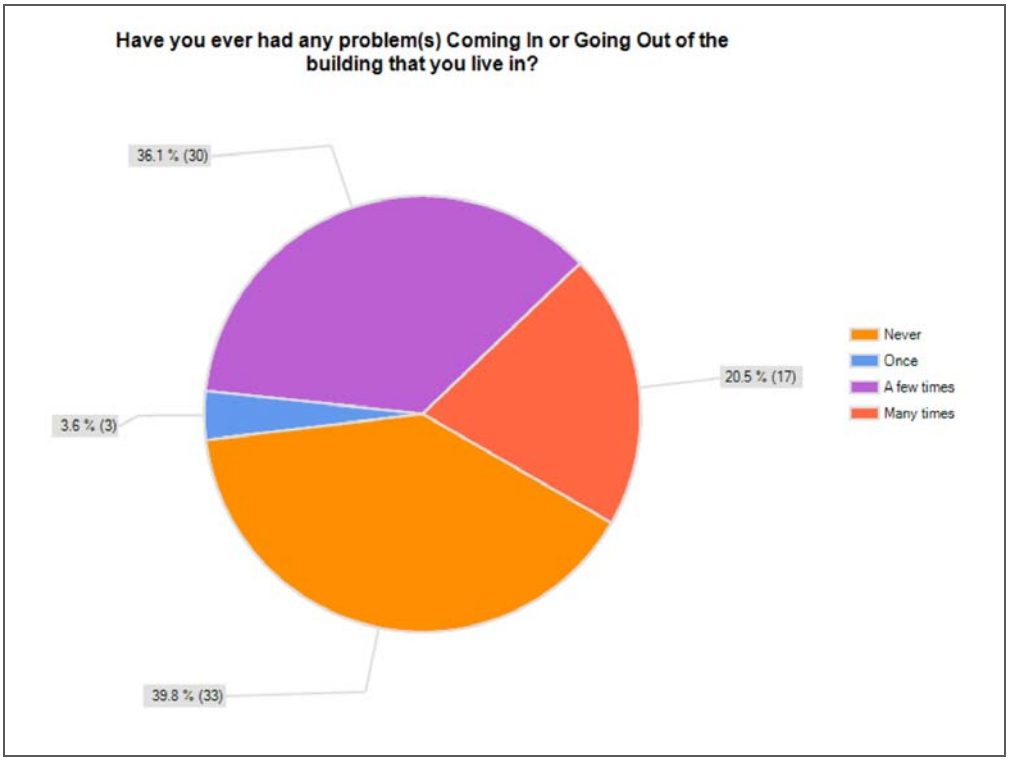
- 50.6% of the home entrances are not wheelchair accessible
- 45.8% report ‘not well lit’ approaches to home
- 19.3% of approaches to the home entrance have no contrasting bands on steps

Fig 7 Internal doorway area



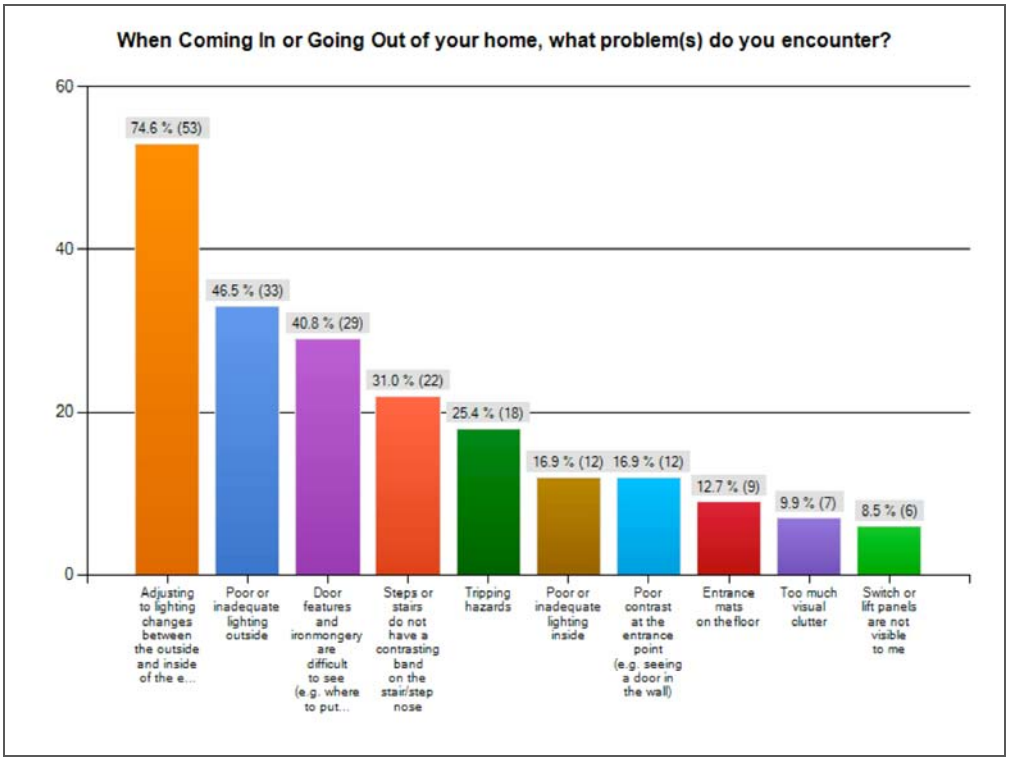
- 74.4% have a personal exit to the outdoors
- 48.8% of people's exits were well lit
- 35.4% were not well lit

Fig 8 Experience of problems coming in or going out



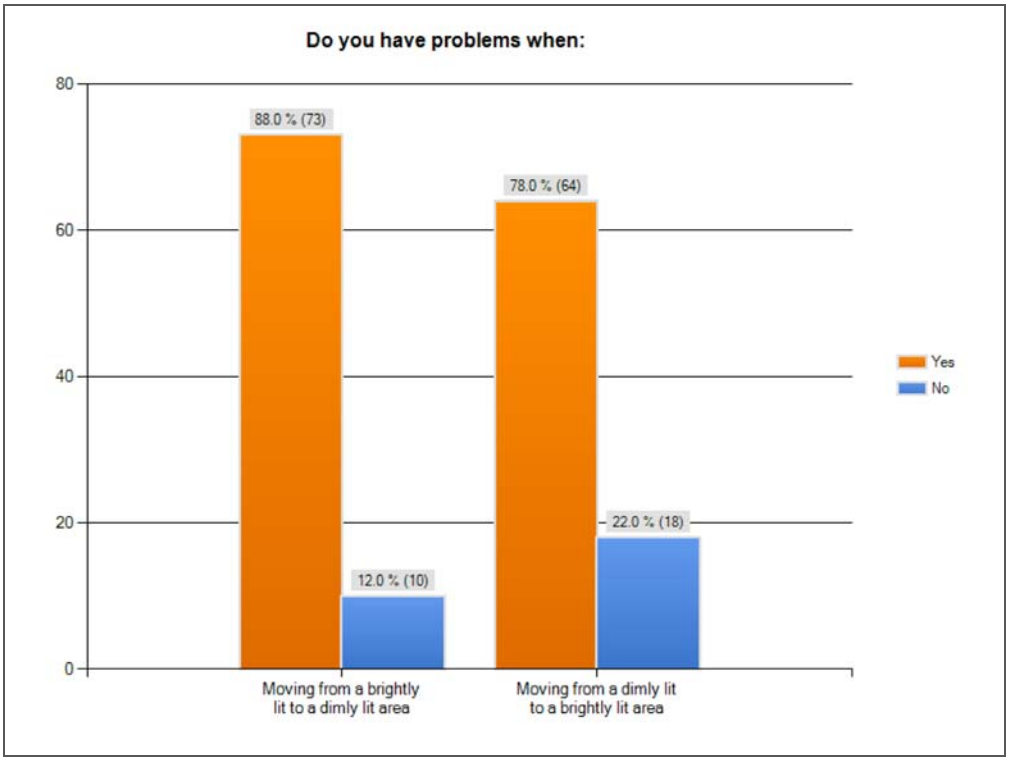
- 55.6% of respondents (20.5% + 36.1%) identified problems, many or a few times on entering and leaving the building

Fig 9 Type of problems with coming in or going out



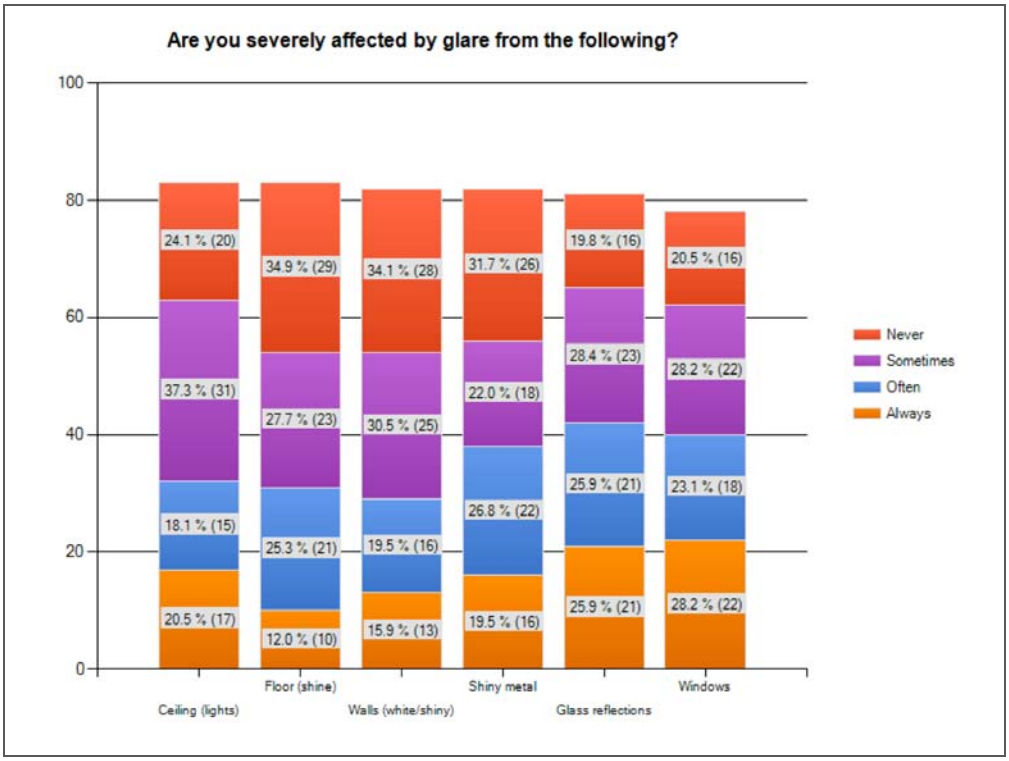
- 74.6% of respondents identified problems adjusting to light changes between the outside and inside of the entrance
- 40.8% of responses found door features difficult to see
- 31% of responses found that steps or stairs had no contrasting step/stair nosing

Fig 10 Adaptation to light levels



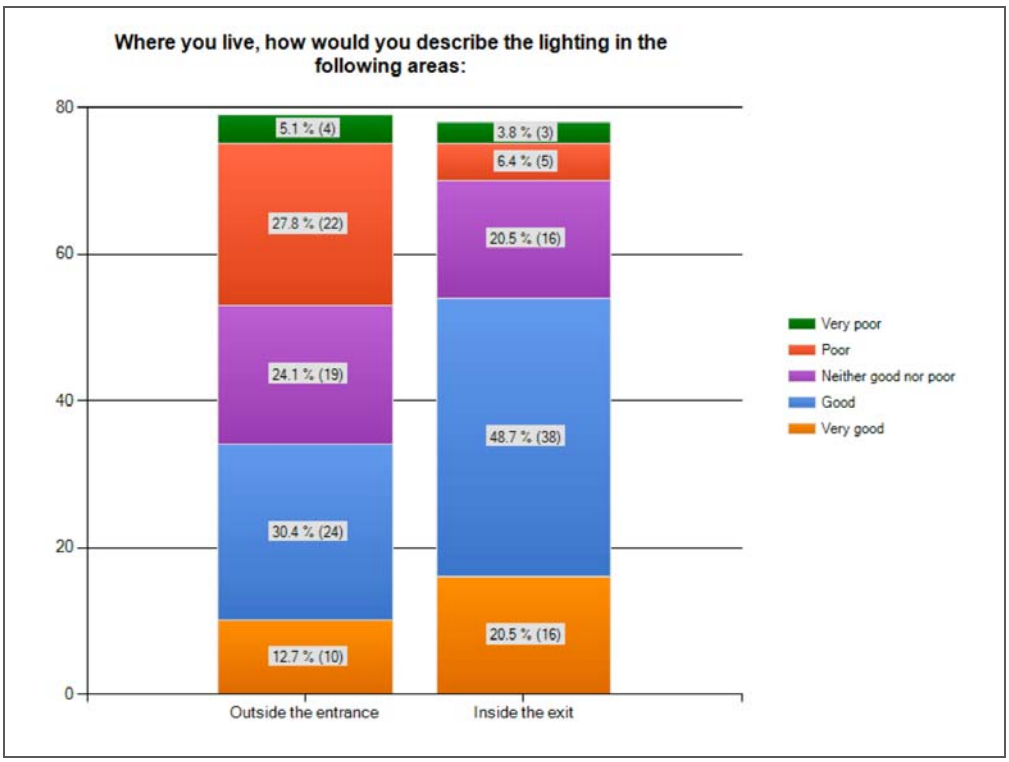
- 88% of people have problems when moving from brightly lit to dim areas
- 78% of respondents find dim to bright areas difficult

Fig 11 Problems with glare



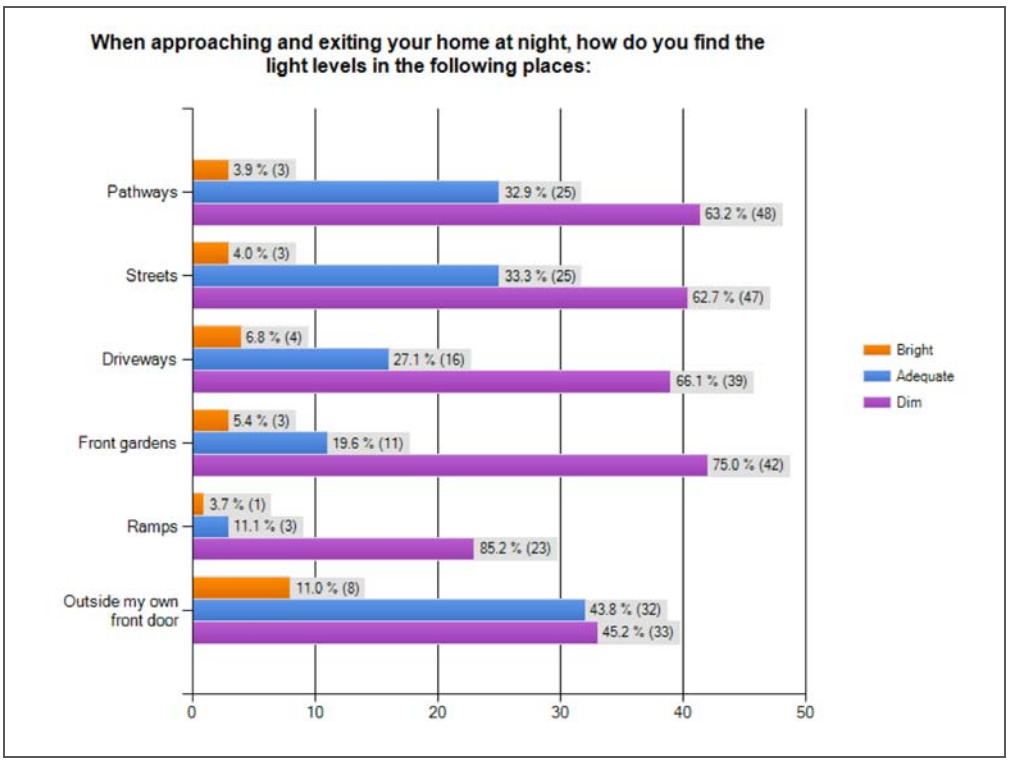
- 72.4% of responses identified that they are affected by glare of some kind
- 27.6% of responses indicated that they never are affected by glare
- Glare from lights, floors, shiny metal and glass reflections often severely affects people

Fig 12 Lighting at the door



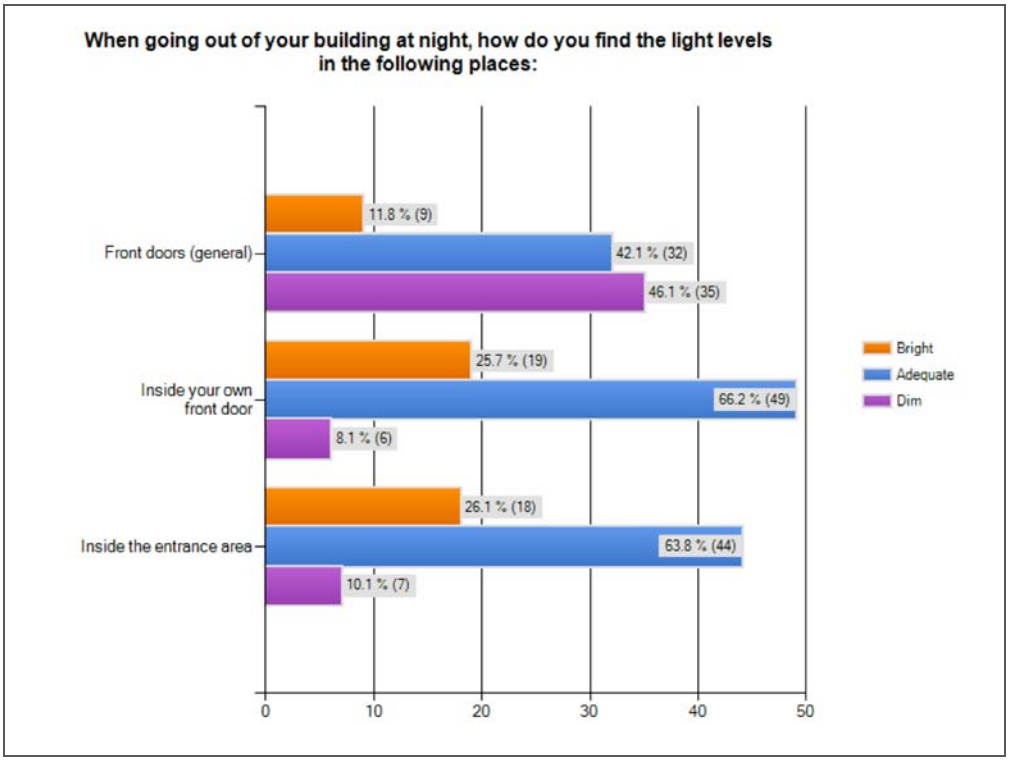
- 69.2% of people found the lighting inside the exit to be good or very good
- 57% of people found lighting outside the entrance to be less than good

Fig 13 Light levels when approaching and exiting at night



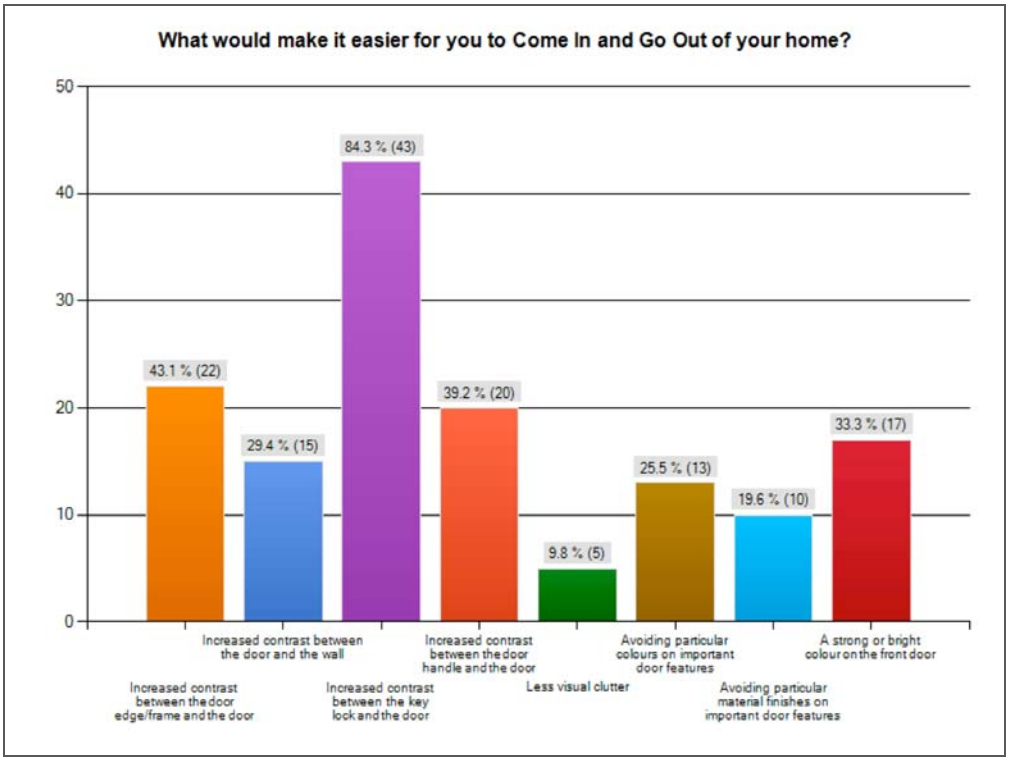
- 75% of respondents had dimly lit front garden areas at night
- 45.2% of respondents found lighting dim outside their own front door at night

Fig 14 Lighting in different doorway areas



- 46.1% of respondents found lighting at front doors in general to be dim
- 66.2% of respondents found lighting adequate inside their own front door
- 26.1% of respondents found lighting bright inside their entrance area

Fig 15 Contrast and colour



- 84.3% of respondents would benefit from increased contrast between the key lock and the door
- 43.1% of respondents would benefit from increased contrast between the door edge/frame and the door
- 33.3% of respondents would benefit from a strong or bright colour on their front door

Qualitative responses to the survey

“What do you like/not like?”

Automatic doors

> “Automated doors are a nuisance because they sometimes take ages to open and I can't figure out whether they're open or not”
>
> “Automatic doors are always useful, saves the searching around for the handle”
>
> “Automatic doors are useful if you know there are automatic doors there”

Some respondents stated that automatic time switches and automated doors in public places are essential. Some people thought that such doors are always useful, and save them from searching around for the handle. Some said that automatic doors make adjusting to the changing light conditions (when going in or out) and using the entrance/exit far easier. Heavy doors (i.e. plate glass etc) were disliked as they are difficult to open, especially when you are carrying shopping. Touch-sensitive doors were also liked by some survey respondents, as were automatic doors with lights inside and outside. Automated doors were also described as being a nuisance because they sometimes take a long time to open and figuring out whether they're open or not can be difficult for some people. Some people went as far as saying that they hated automatic doors as they were perceived as unpredictable (as were rotating doors).

In terms of suggested improvements to automated doors, it was suggested that more audio clues are required, such as doors that produce a sound as you approach them or doors that speak to people when opening and closing. It was also highly important to some respondents that automatic doors open away from the person approaching them, as it is dangerous if someone is approaching a door and it opens towards them. It is also important for automatic doors to have good lighting at dusk, but generally push-button or automatic door/lifts must be well lit.

Doors

> “We are aware we need to replace our front and back doors and windows for various reasons, but cannot afford to do it”

> “I like a brightly coloured door against a contrasting background wall colour”

> “Never use glass doors which are see-through. I find it hard to tell if the door is open or closed with those types of doors”

Survey respondents reported that brightly coloured doors against a contrasting background wall colour were liked. Similarly, good colour contrast on door frames was liked. Contrasting colours that pinpoint the location of the key hole and door handle were also very useful. People commented that if doors are not automatic then they mustn’t be too heavy to push. Also some doors require a push and others a pull to open, if this is written on the door, but if you can't see properly it is very hard to know how to open the door. Identifying people calling at the door with the light behind them making a silhouette can also be difficult.
Generally, glass doors were not liked very much and were problematic to the respondents with sight loss. Some stated forthrightly *“do not use glass doors”* or *“never use glass doors which are see-through”.* It can be hard to tell if such doors were open or closed and respondents reported walking into them. Glass doors were also described as a particular barrier after nightfall. In terms of improving glass doors, it was suggested that glazing should be clearly marked in high contrast colours and that glass doors should have more contrast on edges to improve their visibility as they close. However it was also commented that glass entrances (with clear markings) were liked on one count, that since the internal and external lighting merge and change gradually the further you enter, it provides a transitional change to lighting.

Door furniture

> “I can't see the key-hole to insert the key. This is especially hampered when it is dusk, dark or dawn”

> “All doors are difficult to figure out. Where's the door handle, which way does the door open?”

> “I think a standard layout would be good i.e. locks, handles all in approx same place”

Survey respondents stated that they have problems locating door furniture, such as key holes and locks. This is especially difficult when it is dusk, dark or dawn and people often have to feel around for such door furniture, sometimes while negotiating steps at the same time. When locks are finally located, people also had difficulty in opening doors due to the difficulty in positioning their key into small keyholes.

Some door furniture was helpful. For example, there are locks which have a raised ring which is silver coloured and catches the sunlight. Various individuals stated that brass door furniture also reflects the light and draws attention. Other locks are raised from the surface of the door. Many people suggested having well marked/highlighted and/or lit keyholes and raised locks in a contrasting colour/metal. Others suggested tactile markings or a reflective band or edging to help find the key hole (or making all door furniture more tactile). Door furniture in general, such as door handles and knobs would be visible if it contrasted with the door colour. Similarly, doorbells and letterboxes should be highlighted in a contrasting colour to aid visibility. Handles that are big and easy to find would also help many of the survey respondents. A standard layout would be extremely helpful to some people, for example having locks and handles all in approximately the same place on all doors throughout a building.

A sensor light above the door would help some people if lighting conditions are dark or dim outside. A dark colour like red or blue against a white frame was also felt to help visibility.

There are communal front entrances to flats which are operated by a close-contact fob. This is very easy to use for some visually impaired people, and they are especially helpful when it is dark outside. However it was felt that the area where the fob has to be placed could be more visually apparent. Automatically opening doors to communal areas, or illuminated entry phone points were also liked by respondents. There were suggestions for speech features, such as “key inserted”.

Flooring

> “Obstacles and clutter in communal entrances make it difficult for me to walk through confidently”

> “I like non-glare flooring”

The survey respondents preferred matt floors that were non-glare. Various people want tactile areas on floors to aid navigation. Clutter in communal entrances makes these areas difficult for people with sight loss, who don’t always see such obstacles in time and can trip over them.

Lifts

> “I do not like glare and shine from the metal and glass in lifts”

> “Control panel buttons need to contrast more”

Buttons in lifts need to contrast more with their background. In addition, some respondents commented on not liking glare and shine from metal and glass in lifts. With regard to button layout, there doesn’t seem to be a standard convention for positioning, which makes using new lifts confusing.

Lighting

> “The light switch for this area (entrance and exit) is not accessible and there is no pattern as to when the lights are on or off. When the lights are on I can see to walk easily from the entrance to my flat, and vice versa, but must slow down and feel my way by touch when the lights are switched off”

> “External lighting outside the front door, lights illuminating the boundaries of the path leading up to door would be very helpful”

> “I like lighting that looks like daylight, not too bright but bright enough so I could get the feeling I could see stuff like contrasting bands on steps etc. and door handles”

Automatic lighting in entrances/exits/porches is helpful and assistive as it avoids having to find light switches. A motion sensor for automatic activation means that no buttons need pressing. These lights need to come on gradually to help eyes adjust to the increase in light coming on and importantly, need to stay on while someone is in the sensor path. PIR lighting was mentioned as being helpful and one respondent described sensor lighting as “Lighting that automatically switches on - great, for me and the environment!” However, one has to be close enough to trigger the sensor. Once this has been done, entrances and exits are well lit. People commented that they often find automatic lighting to be very bright whilst others felt that it can work unreliably as well. In public buildings, it would help to combine lighting that automatically switches on with large letter direction signs.

One person commented that the light switch for their entrance area is not accessible and there is no pattern as to when the lights are on or off. When the lights are on they can see to walk easily from the entrance to the flat, and vice versa, but they is a problem when the lights are switched off. Better positioned light fittings were a general concern for many respondents.

Lighting on outside steps was felt to be lacking generally. Directing lighting towards steps would therefore be helpful. Some respondents have tripped up on the step a few times due to poor lighting outside, especially when it is dark. Strips to pinpoint the edge of the steps were liked by some people. Security lights that come on as you walk up pathways were also liked as long as the direction of the light wasn't beamed directly at you. External lighting above the front door outside, with lights illuminating the boundaries of the path leading up to door, combined with better light from the street, would help some people. Some people's paths were not lit at all at night. One individual suggested improved low level lighting for pathways at night is an appropriate lighting level. In some cases a simple light fitting outside the front door was helpful. Head-level lighting can be an issue in terms of glare, so high-level lighting above a door is better for some people with sight loss. Another concern was echoed: "There just has to be plenty of light so that I can see whether or not there are stairs to worry about". Another suggested solution was low energy strip lighting that outlines the door.

Only one respondent out of 91 said they had managed to obtain local authority funded driveway lighting and automatic lights around their building. Another person installed a security light on their house after a lamp post at the bottom of the drive was moved and reduced the amount of light that they had at the entrance to their house.

Street lights were dim for some respondentsand a few people had no outdoor lighting at all. Street lighting had recently been changed for several respondents, with one stating that it is like a torch shone from above and it only lights up the immediate area underneath the post, resulting in large gaps of darkness between lamp posts. Various respondents simply wanted brighter lighting around their block of flats. In some cases, the communal outside lighting wasn't working. As one person concluded, "an outside light and a hall light and security lights make coming home fine [for me]".

Daylight light bulbs and directional lighting were liked by some people, as well as spot lights, wall lights and light directly above the door. Problems

with lighting in communal areas were identified: “I live on 2nd floor, so 3 flights of stairs to go down, often I can't find the first or last steps, [it is] not light enough and nothing to determine where they are”.

Lack of lighting transition was a problem for some people, for example, going from light to blinding light on sunny days, and coming from a bright sunny day into a dim house. In both cases it takes a long time for eyes to adjust, so people either have to wait or walk “blind”. The same applies at night, going from a lit house to the pitch black outside or from pitch black to brightly lit house. A kind of “stepped lighting” would be a benefit e.g. bright light inside the house getting dimmer towards the exit, but not too dim, and a bright entrance during the day that dims gradually. People stated they would like a timer light to come on before its dark and one individual had difficulty adjusting from the dark entrance of their house to the brightness of the outdoors.

With regard to light bulbs, brighter lighting was preferred, particularly to help see door furniture such as door handles. Energy saving light bulbs were not popular. Fluorescent lights and daylight bulbs which were described as being not too bright but bright enough to see things like handles and contrasting bands on steps, were generally liked by people. Certainly bright porch lights were appreciated.

Paint and Contrast

> “Many blocks of flats in Edinburgh have entrances that are all alike. It is easy to get lost when counting the doors, because there are so many”
>
> “There is too much cream and beige in communal areas of the flats which just confuses me and makes it difficult to orientate correctly”
>
> “There is a lack of contrast between floors and walls”

Survey respondents stated that good contrast would help their vision (light colours on dark background or dark colours on a light background). A contrasting door with a white frame is useful. On a similar note, bright high-contrast door colours with contrasting edges would also help. Good contrast between the door frame and the wall, and the door and the frame were liked. A few respondents commented that the colour of their door could be changed to help them to see it more clearly and to increase contrast with the walls. Also ensuring that the door and door furniture (such as locks/keyholes) are in contrasting colours is helpful. One individual had a well contrasting front door consisting of: “a brick wall, a white door frame and a brown wooden door. Light coloured walls in the stairway with dark steps with a white strip at the front”

Respondents felt that there was a general lack of contrast between most floors and walls. Clearly marked steps with contrasting bands on the edges were liked. It is seen as important to ensure high Light Reflectance Value (LRV) difference exists between key entrance/exit features. It was stated that it would be useful to see increased publicity for the Dulux or Johnston contrast guides, and perhaps showing good door contrast palettes in DIY stores.

Paving and steps

> “Entrances have no tactile landmarks; they are all the same type”
>
> “My path is made from concrete slabs with tarmac in between which is breaking up and I have stumbled on a few occasions because it is no longer level. This is worse when dark as my sight is weaker with failing light”
>
> “I have been on benefits since 2005. We simply cannot afford to do paths”

Lighting the way on paths from the street to the front door was liked. Many drives/pathways were felt to be black tarmac with little contrast to assist

pathways to the house. Illuminated or marked pathways and driveways were preferred.

One respondent suggested that a large area around an entrance should have paved lines or different coloured tiles, which are subtle, look nice to all and are useful to visually impaired people. On a similar note, different pavement slabs like blister pavement, different texture of tiles on the floor inside the building that can act as a guide to the entrance/exit, or blister tiles used as a guide across large open areas and to exits.

Steps should have contrasting nosing (edges) on them and a few people said they would also like these on bollards and lamp posts. Unmarked steps into the hallway from the front door can be difficult to see. Good lighting was also perceived to help people to see steps. “I have steps from front path to street level and although they are painted edges I don't always see them if the street lights are not good”. One respondents’ husband painted the edges of their steps a brilliant fluorescent white. Light metal strips on white/cement coloured steps were disliked by some people as they do not provide enough of a contrast. In addition to edge markings, handrails were also helpful if visible.

Contrasting and tactile floor markings were described as helpful, and if there are plants near an entrance they should always be in contrast to the ground, e.g. grass against the pavement colour so light concrete against dark grass or plants

Railings

> “I like handrails and tactile markings on the floor”
>
> “Handrails are useful if they are not cold bare metal”
>
> “Handrails are good for me”

Handrails were considered very vital for people with vision problems. It is important that outdoor handrails are not cold bare metal as these can be painful to touch in very cold weather. Having a small notch on the underside of handrails to indicate the end of a handrail is a useful feature.

Ramps

> “Being able to walk up a ramp avoids steps, making it easier”
>
> “Ramps with handrails, well-lit and a clearly marked doorway is good”

Ramps were generally liked as a way of avoiding steps. Ramps and automatic doors were liked by a few who had well marked automatic doors

Revolving doors

> “Ban revolving doors and replace them with automated doors”
>
> “No more glass doors and revolving doors please”.
>
> “No revolving doors. I hate them”.
>
> “The worst offenders are glass doors and revolving doors and wheelchair accessible doors with a button that you need to push”.

Visually impaired people had strong feelings about revolving doors. Some felt that they should be banned and replaced with automated doors. It should be obvious which way the door opens/revolves. It is also important to be able to see if there is a person on the other side so that a visually impaired person doesn’t collide with them.

Signage/Landmarks

> “I need landmarks to indicate my house in the terrace”

> “It would help me to have a feature or sign to allow me to know where the entrance is. My home has fenceless front gardens along the street”

> “One of the entrances is surrounded by bushes. During the daylight I look for the gap in the bushes to detect the entrance. At night I find the light that is normally above the entrance. However, at times the light has not worked”

Respondents find it difficult to find their entrance so there is a need for some kind of landmark/feature or sign to help some people to identify their entrance is or to indicate the location of their house. Suggestions varied from bright lit front doors to flower pots and tubs painted white at the entrance to a building. Tactile markings on walls were described as being useful to aid this. Signage in general should be in good contrasting colours and big enough for people with sight loss to see and follow. Better signage on the doors was also commented on and required by respondents.

Large lit exit/entry signs are liked for communal entrances and could be attractive and well designed. In public buildings, insignificant directional signs cause many problems.

4 Developing the Checklist

Following analysis of the survey data, an initial Checklist of 26 areas of concern was formulated from the critical issues highlighted by the respondents. The items were:

1 Outdoor paving/kerbstones
2 Tactile paving/floor marking
3 Tarmac
4 Flooring
5 Outdoor railing
6 Handrails
7 Ramps
8 Steps and nosings/edging
9 Lifts
10 Signage
11 Lighting
12 Light switches
13 Security Lighting/motion/sensor
14 Exterior/remote lighting
15 Strip lighting
16 Doors
17 Door furniture
18 Door locks and keys/security locks
19 Door bells/announcing/ringing
20 Door frames
21 Glass doors/manifestations
22 Revolving doors/automated doors
23 Brickwork/building material/stone
24 Paint/surfaces
25 Porch design
26 Entrance mats

The headings on the long Checklist were then collapsed into a shorter, list of items and elements, to discuss with manufacturers of entrance materials and products:

Revised Checklist

1. Automatic door/revolving door/manifestation
2. Door/frame/number
3. Door furniture/handle/lock
4. Flooring/mat
5. Handrail/railing
6. Lifts
7. Lighting/auto/sensor
8. Paint/wall
9. Paving/path
10. Porch/threshold
11. Ramp
12. Signage/landmark
13. Step/nosing
14. Switch/button/bell

Collaborating organisations and companies

It was important to obtain feedback and input on the revised Checklist from the following people who were crucial to moving forward on provision for people with sight loss:

- The collaborating local authorities
- Manufacturers producing elements on the Checklist items

Key organisations within each sector (e.g. flooring) were then contacted and subsequently met with the research team to discuss new product development.

The following companies attended meetings that were held in London in summer 2012. They have supported the project by sharing knowledge on best practice and discussing or suggesting products that may benefit

people with low vision who are applying for local authority support to upgrade their entrance/exit. They also were involved in new product development.

Collaborating manufacturers

- AATi (Safety tread and stair nosing)
- Assa Abloy (Doors, door sets, door ironmongery, security, access)
- Besam (Automated doors, access, security)
- Erco Lighting Ltd. (Lighting)
- Gradus (Flooring)
- InterfaceFLOR (Flooring)
- Laidlaw Solutions Ltd. (Doors, door sets, door ironmongery, access)
- Marshalls Paving (Paving)
- Rivermead Signs Ltd. (Signage)
- Sesame Access Systems Ltd. (Lifts, ramps, accessibility)
- SignWorks (Signage)
- Square Collective (Product design)
- Tormax UK Ltd.(Automated doors, security, access)

The following is a summary of potential impact that the research project may have on companies' products.

Fig 16 Ecoglo

Summary of discussions

- Ecoglo is a photo luminescent material: It stores natural and artificial light and emits a glow in the dark
- The product is manufactured in various different formats: strips, wall plates, keyrings etc.

New Product Development Possibilities

- Ecoglo could be manufacturing a new door number range
- Strips of Ecoglo can become part of a kit that can be bought off the shelf at DIY stores such as B&Q
- Ecoglo panels or small strips can be stuck onto a front or back door near doors locks to make them more easy to find in low light conditions
- Ecoglo could be combined with Sugru (a strong adhesive substance) to form a new product that can be included in the aforementioned kit

Fig 17 Assa Abloy

Summary of discussions

- Assa Abloy produce door locks and door furniture so the research project is of particular interest to them
- Their current NPD is focused on assistive technology solutions. The photographs are of high-tech door locks that operate with a key fob/PIN button entry system (The Keyfree digital lock). The solution offers audible feedback, the level of contrast in elements of the design could be increased
- The Brighthandle products are door handles that incorporate mains powered lights

(Assa Abloy, 2010)

New Product Development Possibilities

- One area that has highlighted a gap in availability of products, with little to offer the accessibility market, are powder coated/dark metal door handles, door locks and door furniture that contrast with the ubiquitous white PVC doors

Fig 18 Besam and JWS Ltd

Summary of discussions

- Manufacturers of revolving and automatic doors thought that their products are accessible for people with sight loss
- The research project has highlighted that this is not the case for all people with sight loss, some of whom, for example, avoid revolving doors at all costs, particularly if they have a guide dog
- Current ‘accessibility panels’ such as the large buttons near automatic doors with the disability symbol on them are not visible enough for people with low vision

New Product Development Possibilities

- A new accessibility panel is being re-designed with an enlarged, simplified symbol
- The symbol will be backlit with a white LED
- The surrounding plastic will be black to provide maximum contrast
- Besam are in discussions with Barclays with regard to the design of the automatic doors at Barclays branches and will take the research findings into these discussions
- Besam may additionally require further design consultation from the research project team

Fig 19 AATi

Summary of discussions

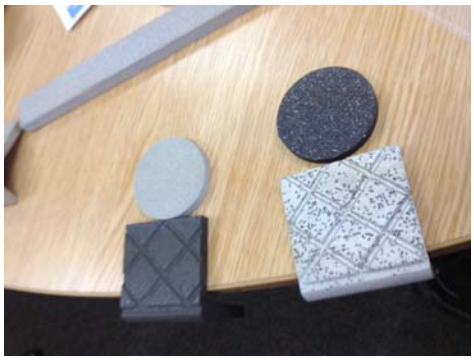
- There are fundamentally two types of step nosing: Solid metal ones and those with polymer resin inserts which can achieve any colour/contrast requirement
- Cast aluminium step nosing is the cheapest option available.
- A liquid resin can be poured behind the step nosing to create the step tread (the flat part of a step that the foot lands on)

New Product Development Possibilities

- The company is considering a range of grey resins in steps of varying Light Reflectance Values (LRV) for its architect clients to choose from. LRV of greys can be checked with a meter (Cromocon, 2011)
- An aluminium nosing with a dark resin tread (as shown below - right), and a treated (rust inhibitor) cast iron nosing with a mid-grey tread (as

shown below - left) are two combinations that were designed together with the project team

FIG 19b AATi



- A raw cast iron step nosing can be combined with several light coloured carpets for a more domestic looking combination, which is accessible (as shown below)

FIG 19c AATi

Fig 20 Gradus

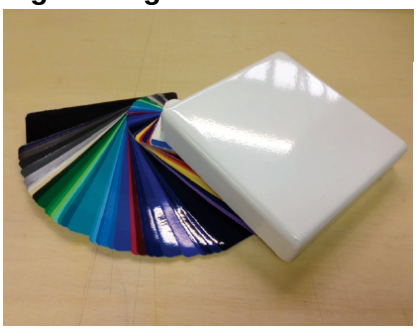
Summary of discussions

- Gradus provide an excellent guide for selecting the correct interior stair edging/nosing which is underpinned by BS8300:2009+A1:2010
- Gradus produce external step nosing that can be linked to tread plates
- The flat part of the step (the tread plate) and the nosing options produced offer slip-resistance for a variety of weather conditions
- The company also produce sunk-in entry mats that are accessible to people with low vision
- Gradus provide Light Reflectance Value information on their step edging products in accordance with BS8493:2008+A1:2010
- The company also provide guidance to creating safe, accessible entrances through selection of the correct entrance barrier matting

New Product Development Possibilities

- The company has recently developed a glass reinforced plastic (GRP) insert integrated with a nosing that can be customised to any step specification
- Gradus have shown interest in user-testing their products with people who have low vision to contribute to their New Product Development process

Fig 21 SignWorks



Summary of discussions

- Following a discussion with the research team, SignWorks is producing a new design for a sign that can act as a landmark for people with low vision
- The company aims to make the design as low cost as possible and integrate it into a door number

New Product Development Possibilities

- The company is developing two versions of a door sign that can also be a useful landmark for people with low vision
- Design proposal 1 (the number 23 with a single colour background, shown above) is non-illuminated
- Design proposal 2 (the number 23 with a white square background) is backlit with LED lighting and requires a mains power supply
- A prototype for the research project has been produced

Fig 22 Collaboration with councils on the Checklist

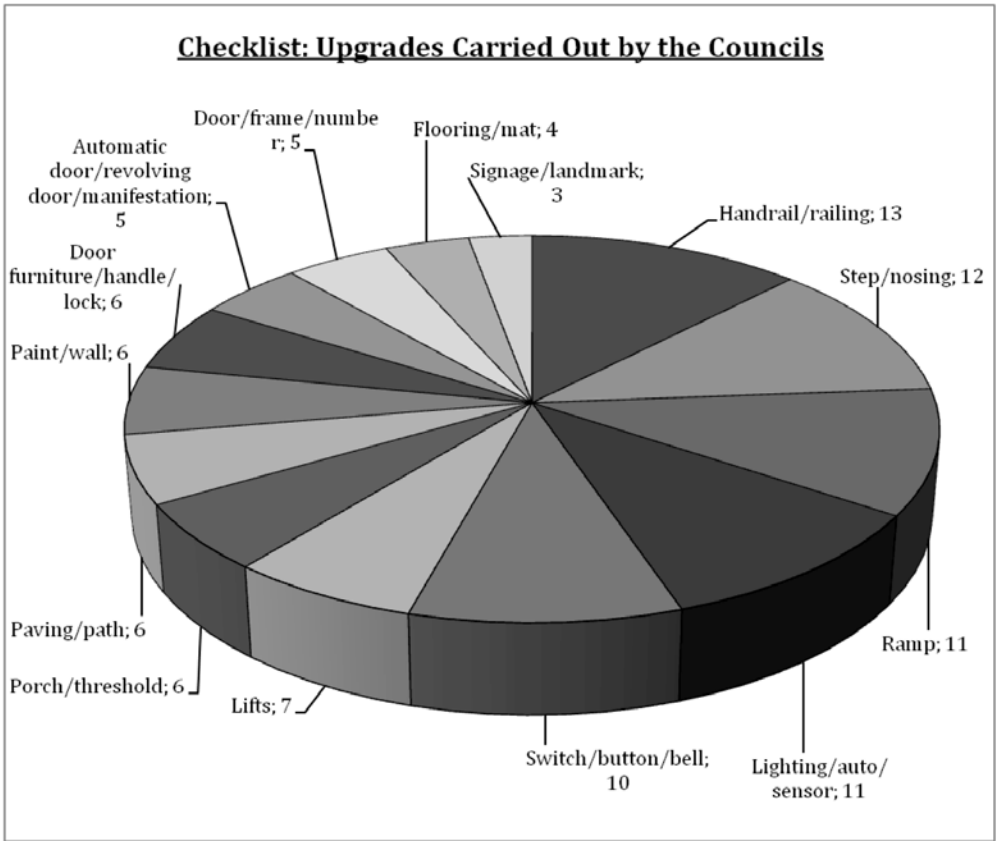
It was important to have input from local authorities into the development of the Checklist. The draft Checklist was discussed with all of the participating councils to find out if any of the listed items had been previously upgraded or adapted for residents with visual impairment. Not all of the councils responded to the enquiry. The results of this are shown in the table below.

Key:
✓ = Council confirmed DFG support for Checklist item
× = Council confirmed no DFG support for Checklist item / Council did not respond

14 POINT CHECKLIST ITEM: ➔	1. Automatic door/revolving door/manifestation	2. Door/frame/number	3. Door furniture/handle/lock	4. Flooring/mat	5. Handrail/railing	6. Lifts	7. Lighting/auto/sensor	8. Paint/wall	9. Paving/path	10. Porch/threshold	11. Ramp	12. Signage/landmark	13. Stepnosing	14. Switch/button/bell
COUNCIL A	×	×	×	×	✓	×	×	×	✓	✓	✓	×	✓	×
COUNCIL B	×	×	✓	×	×	×	✓	✓	×	×	×	×	✓	✓
COUNCIL C	×	✓	×	×	✓	×	✓	✓	✓	×	✓	×	✓	✓
COUNCIL D	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	×	✓	✓
COUNCIL E	×	×	✓	×	✓	✓	✓	×	×	×	✓	✓	✓	✓
COUNCIL F	×	×	×	×	✓	✓	✓	×	×	×	✓	×	✓	✓
COUNCIL G	✓	×	×	✓	✓	✓	✓	×	✓	✓	✓	×	✓	×
COUNCIL H	×	×	×	×	×	×	×	×	×	×	×	×	×	×
COUNCIL I	×	×	×	×	×	×	×	×	×	×	×	×	×	×
COUNCIL J	×	×	✓	✓	✓	×	×	✓	×	✓	✓	×	✓	✓
COUNCIL K	×	×	×	×	×	×	×	×	×	×	×	×	×	×
COUNCIL L	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×
COUNCIL M	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	×	✓	✓
COUNCIL N	✓	×	×	×	✓	✓	✓	×	×	✓	✓	×	✓	✓
COUNCIL O	×	×	×	×	×	×	×	×	×	×	×	×	×	×

COUNCIL P	✓	✓	×	×	✓	×	✓	×	✓	×	✓	✓	✓	✓
COUNCIL Q	×	×	×	×	✓	×	×	✓	×	×	×	✓	×	×
COUNCIL R	×	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	×	✓	✓
SUB TOTALS	**5**	**5**	**6**	**4**	**13**	**7**	**11**	**6**	**6**	**6**	**11**	**3**	**12**	**10**

Fig 23 Upgrades carried out by the local authorities



This chart quite clearly that the commitment to upgrades belongs in the handrail sector. Step/nosing, lighting and ramps make the next few items that get support from councils; these are all items that would be useful for other disabilities as well.

See Appendix E for comment from some local authorities in relation to the Checklist.

5 Advisory panel and consultation

Fig 24 Advisory Panel meeting, Kingston, April 2012

Aim and format of meeting

An Experts Advisory Panel meeting was run by Professor Dalke, project leader at Kingston University London and Alessio Corso, Research Fellow. The aim was to generate additional points for the Checklist and to discuss the early research findings and the design, colour, contrast and lighting issues that were emerging from the study.

The meeting began with a presentation of the initial research results. This was followed by a Question and Answer session with the project leader and main researcher. In the second half of the meeting, the group of thirty Advisory Panel members were divided into groups for topic discussions.

Advisory Panel Groups

Group 1 Doors and entrances: Automatic, glazing, door edges, door frames, door sets, door hardware and furniture, letterbox, colour, contrast, movement sensor, house/flat front door.

- Deborah Whelan, Oxford City Council
- James Ritson, Kingston University London
- Sarah Buchanan, Thomas Pocklington Trust
- Yamuna Kaluarachchi, Kingston University London

Group 2 Accessibility and technology: Entry systems, bells & buzzers, sensors, alarms.

- Chamandeep Grover, Kingston University London (VIP)
- Katie Livesey, BRE
- Brenda Puech, Centre for Accessible Environments
- Geraldine Plummer, Thomas Pocklington Trust

Group 3 Light and lighting: Street lighting, lighting in front gardens, porches/entrance hall lighting, energy saving bulbs, security, adaptation to light levels, duration of automatic lighting, types of lighting.

- Becki Meakin, SAVI (VIP)
- Ruth Pink, Wandsworth Council

- Martin Affleck, Martin Affleck Consultancy
- Lynn Watson, Thomas Pocklington Trust
- Rosemary Hurtley, 360Fwd
- Barbara Corr, Barbara Corr Lighting Consultant

Group 4 Approaches and steps: Stairs, paths, gates, paving, ramps, nosing, railings, banisters, handrails, landmarks.

- Miriam Osborne, Royal Borough of Kingston (VIP)
- Beata Duncan-Jones, London Borough of Hammersmith & Fulham
- Bethany Winning, Royal Institute for British Architects
- Kylee Brennan, Thomas Pocklington Trust
- Alessio Corso, Kingston University London

Group 5 Materials and building: Materials, flooring, wall colour, building design, architecture.

- Tony Shearman, Cane But Able Ltd and BBC Radio: In Sight (VIP)
- Richard Harral, Department for Communities and Local Government
- Steve Nottage, Merton Council
- Jane Simpson, Jane Simpson Access
- Hilary Dalke, Kingston University London and Cromocon

Group 6: **Exits:** Communal exits, private exits, accessibility, clutter, tripping, wayfinding, orientation.

- Christine Ward, Questionnaire respondent (VIP)
- Wayne Ryan, London Borough of Hammersmith & Fulham
- Susan Pattrick, SMP Consultancy Ltd.
- Jeremy Hicks, Milliken
- Simon Curtis, Thomas Pocklington Trust

Report from the Advisory Panel: Expert discussions

The meeting brought together thirty experts from architecture, design, occupational therapy, visual impairment, local government, access and training in an open forum. The aim was to collate from the discussions: information, opinion, experience, suggestions, ideas and recommendations for improving home entrances and exits for people living independently with

low vision. The discussions were recorded, transcribed and written up in sections covering:

- Pathways
- Landmarks
- Doors and Entrances
- Door furniture
- Handrails
- Accessibility and assistive technology
- Day and artificial lighting
- Approaches, steps and ramps
- Materials, colour and contrast
- Exits

The report below is a record of those discussions at the meeting and directly conveys the participants' wide-ranging views, experiences and ideas.

General discussion

In the UK, the construction of new homes accounts for less than 1% of the housing stock per year. Houses have got to last 25 to 35 years, yet lifetime homes (which offer an increased level of accessibility) are in very short supply. The same problems will always exist in buildings, in terms of contrast, doors and handles and lighting in external and internal areas. Lifetime homes should ensure that there is a diversity of accessible housing. The national planning framework (NPPF) states that building providers need to get the housing stock in order. A major issue for building and refurbishment industries is that 80% of current housing will still exist in 2050. Regulations for buildings pre-1919 and buildings of traditional construction up to the 1930s are different from those of today. Regulations have changed recently regarding conservation in buildings; accessibility now overrules conservation issues.

Lifetime Neighbourhoods is concerned with wayfinding, accessibility and creating the right community spaces; the research at Kingston should plug in

to this. It is important to ask whether building developers have any input from the communities we are talking about today, such as visually impaired people or those who are hard of hearing. Unless we can contribute knowledge about what does and doesn't work, good practice cannot be shared and used. There is an initiative, VEE (part of CABE and English Heritage activities) that asks professionals to give advice on planning applications. Discussions with the Design Council will be happening over the next couple of months and better communication about these issues is also being examined at BSi (British Standards) meetings, as a lot of research is not known or easily available. Interested groups and individuals are not aware of what has been done before and where best practice can be seen and utilised. Partial funding for research in these areas usually covers different sectors that should overlap, but most don't. Making information available so that it can be using more effectively would create stronger links between policy, research and development.

A local authority will not tell you to paint your door a certain colour, although conservation may limit what you can do. The big question is how you make sure that people are able to make adaptations to their homes, enabling them to be as independent as possible and to make their lives easier. There are always issues such as changing or modifying light fittings. Things can be done to make sure the home is adaptable for low vision living but guidance is needed to assist with applications for DFG. People's health conditions change and worsen in many cases and with vision impairment, we know that it is complex and varies with each person so a fit for all is a design challenge.

There are fundamentals about buildings and entrances that would be helpful for everyone dealing with people with low vision to know about. The construction of an entrance to a building cannot be changed once it has been built. However it can be modified by simple strategies to make it more accessible. Perhaps just using lighting or contrast and audio cues for example may improve an environment entrance or exit area.

Building regulations are a functional system. You can put forward any solution as long as it meets functional requirements. Research is often not known to designers and the results are not put in a place where they have credibility and the professionals can feel happy taking them forward and discussing with regulatory authorities. Sharing information in the right place and making it more visible is important and would be very effective. Certainly using visual illustrated examples of everything that might make a difference is going to have more impact than long elaborate descriptions of what is necessary.

Case studies are important and designers respond far better to illustrated examples than to written descriptions.

There are two issues – 1) empowering people and 2) understanding what changes are possible. The road to empowerment stops before it gets to the people who have the power to create accessible buildings. The only way to make change happen is from the ground up, by informing the people who need the information. A recent survey was carried out to find out what building control officers thought about the attitude of designers and clients (developers). Designers apparently did well but clients did not do so well. One member of the panel stated that they work with architects and are told by them that if you tell me to do something different from the templates we roll out it will cost more and I will be the one to lose.

Getting good practice and information assembled is the first critical step; establish what the problems are and then set out the relevant information so professionals can overcome the problems. Architects and designers are usually educated through precedent and importantly through evaluation, studying buildings that have been designed and built, so we have a library of solutions that derive from that historical precedent. It is a difficult educational nut to crack. It can be done but it is a slow burn.

The challenge of the designer's and architect's job is to understand the variability of people's vision in their lifetime. We need to ensure that designers and architects are given this knowledge; they certainly do not like being told what to do, which challenges accessibility and disables people. No single solution can definitively instil confidence in the environment for people with vision loss. Architects have increasingly complex buildings to design and fewer resources to achieve it. Clients are squeezing on price. So there is an environment, a real politic about the environment the designers are working in, that you have to recognise. The question is "what do you provide so that they can feel confident that they are moving in the right direction?" How do you find the middle ground, where you get the most benefit from a series of moves?

Pathways

Walkways with guiderails and markers are helpful for people who use a cane. Paths with gravel in the middle against sleepers, then grass either side are useful for guidance, as the texture and sound of gravel is more useful than lighting and good for security too. People use boundaries of paths a lot so

they are helpful if built in. The cane can run along these boundaries and a guide dog will use pronounced boundaries too.

Tactile surfaces are confusing. They can indicate changes in direction or junctions of pathways where one goes left and the other right, as a lot of people know what it means. Older people often do not like tactile paving as it can cause tripping accidents; it comes down to individual preferences. What may be more important are the raised edges on pathways to assist the use of a cane. Continuous paving slabs are good for cane users to maintain direction along a pathway. This is useful for everyone's path and aids navigation, so it should be a standard for architects to work towards. A dream pathway is one that changes surface quality when the path changes direction, so your own home pathway is more tactile in some way. You may come off smooth tarmac, onto a different surface or detect gravel at the edges of the path and that helps, as you can follow it to your door.

People are reluctant to install exterior lighting because of maintenance and vandalism. Pathways and gardens could employ contrast between grass and light pathway paving and even if very dark at night, white lines will be visible. The use of photo-luminescent products should be mentioned; they glow in the dark and can be used to mark steps, in signage, or to border a path.

Bushes, hanging baskets or shrubs along paths should also be examined to make sure they would not hit the person, travelling on the pathway and unaware of the protuberance. A seasonal change can affect dangers along pathways, such as from trees, heavy with rain that makes the branches hang lower than normal. Prediction and maintenance against hazards are needed constantly.

Landmarks

Landmarks are important to help people identify where their own front door is. Tactile, strong visual or audible cues at gateposts may be important so they don't wander up a neighbouring pathway; vibrating key fobs, raised or photo-luminescent door numbers or simple devices such as white painted flower pots with dark plants in them can prove useful cues even for guide dogs. A rehabilitation worker can help people with orientation and landmarks, but 11% of the survey respondents were not registered as blind or partially-sighted, so may not be assisted with this kind of service.

Adapting existing homes is very different from building new housing. Helping people with low vision to identify what they need in terms of adaptation of the

home entrance or exit is paramount. People do not often mention the most valuable element of navigation and way finding, which is landmarks. Different landmarks such as bushes, patches of grass, white plant tubs, changing material underfoot as well as hearing and smell to locate where you are is what vision impaired people learn to use all the time.

> *"My sight has worsened and I now use lighting to navigate within spaces not for seeing. The most important things for me are landmarks at certain points in the landscape or environment. As soon as I hit a patch of grass I am near home, by that time the sensor lights come on and I head for those lights".*

One thing that has been learned is how to help people recognise their own home. It is difficult when areas have houses that all look the same so customisation has to be assisted and controlled. Some people speak about never being able to go out at night as they do not feel confident about finding their home. The problem maybe two fold; they don't know what to do to make it easier to find, or how to do it. Housing estates often do not allow fences on the property or a wall, so you need to define your own space in some strong visible way that does not attract adverse attention. There are skills and resources in many local authorities to deliver advice and tools necessary for differentiation if needed.

Doors and Entrances

People with disabilities are more likely to go to a local builder or contractor, not an architect, for advice on improvements to their home and they may not have the right knowledge about access. However in many instances the access or sensory impairment officer within a local authority might be the first port of call for people requiring help or advice. Where people go for information and support is crucial. They don't generally know what to do, and so ask family or friends for help. Research has showed that middle-aged to elderly people use Yellow Pages a lot for contacting anyone for help with their building or entrance and exit problems. Visually impaired people may also go to Age UK, which runs a Handyman scheme to do minor works on properties for a small fee. Quite a number of people with disabilities use Citizens Advice. Throwing light at a front door is something that can be done very economically if there is power to a front door or porch already, but it shouldn't create glare,

which can be disabling. Professionals need help to do the job correctly and the person with vision loss needs to know what to ask for.

A key to any impact from this research is to get as much information out to as many people as possible. A leaflet about front doors, sponsored and distributed by companies or relevant organisations could be really useful – "...simple things you can do to make your front door easier to see or access". What is needed is a well-researched Checklist of the common faults on accessibility and independence at the entrance or exit to a visually impaired person's building or home.

Changes in the domestic environment for people with low vision can be sympathetic to suit all users of the building, including family and friends because alterations should conserve and serve everyone. Secure doors in blocks of flats could have audible devices or use wind chimes to signal entry. Painting your front door a stronger colour or changing light bulbs can be very effective low-cost solutions to better accessibility.

Doors and different types of entrances present a range of problems for people with low vision. A lock is in your control with a key; you may lose a key but a failed electronic system is beyond your control. It is for these reasons that people with vision loss do not like automatic doors because they don't know when they are opening or closing unless there are audible cues. Door hinges should be protected too as they can cause extensive injuries to fingers as has been recorded in one borough. Colour contrast nosing may be there on doors but people forget about the steps outside.

> *"I have an automatically opening door system but it does not tell me when the door has opened so I can hurt myself sometimes walking into it. Modern technology can help, but when lights come on automatically it can shock. We are not knowledgeable about what is available".*

An idea for assisting with entrances could be that if you are a registered blind person you could receive by post a box with for example four markers to put on your door that are solar powered, some contrast tape that could be cut up, with reflective markers and reflective tape. There are three types of markers; solar panels, solar lights or reflective tapes. B & Q could sponsor the kit, or even bike shops. A chart could provide colours that contrast well for visually impaired people to use for doors, skirting or walls. Making bits of kit available is a next step after providing useful information.

> ”*I cannot do anything, and I would have to pay someone to come round and do this for me”.*

Accessible environments shouldn’t look clinical; they can look beautiful. One big issue with shared entrances or doorways is the haphazard dumping of clutter immediately inside the door, and it is extremely dangerous for blind people with no light perception. In social housing areas the level of rubbish that creates heaps of clutter can be very problematic; poor management of the building and also the location of recycling bins need to be looked at. There are often several kinds of bins for different types of refuse; people leave them outside on pavements for collection, where they maybe difficult to see and block the way. Limiting clutter and keeping areas clear inside doorways is a necessity for people to live independently and safely. This may be hard to control in existing buildings but it should be possible for architects to rethink the way they approach a new build and tackle these logistical problems in their designs.

Doors in communal spaces and flats have to operate with a system that is easy for everyone to use. A lot of systems now have doors that are locked so you have to turn the lock and pull the door towards you. For people with a disability such as arthritis it is extremely hard to do. A shiny chrome or brass door handle on a black or red door would help visibility. Manufacturers could advertise it like that but they are not being told about this need. For example, B & Q could select paint from colour charts to indicate the best colours for contrasting door furniture. Manufacturers should produce leaflets supporting inclusive design solutions; there is a huge amount of ‘information failure’ in this sector. People don’t know what they don’t know. Achieving contrast between the door furniture and the door is simple. People often cannot find the keyhole in broad daylight because their shadows exclude light, so contrasting door furniture, darker or lighter than door colour is easy and effective.

A letterbox that is a contrasting colour to the inside of the door could help people with low vision to identify where the letterbox is and how far away the front door is as they approach it. Postmen will sometimes put an elastic band around several letters to keep them together, but this pulls letters and cards out of shape and if you have Braille amongst them this can damaged the Braille. Postmen dislike the spring-loaded letterboxes and also the ones positioned right down at the bottom of the door. It has been reported that not all post gets pushed fully through a letterbox and can remain caught in the

opening. When it drops to the floor, it may not contrast with your flooring and can be missed. This problem could be overcome if there was room to have a cage attached to the letterbox at the back of the door. This is only viable if the door does not open against a wall, which is often the case. If new letterboxes are fitted it is important that they are not vicious ones that could trap somebody's fingers.

The DFG offers important support for visually impaired people but it seems to cause confusion for staff as well as for people with low vision. Something like 'what is the DFG pathway?' and then the answer could make it clearer. Housing improvement agencies are vital as there is an audience waiting to know more. People were asked where they go for the information that they are likely to need to improve their entrances. The most important thing is for us to get information out to customers and ultimately summarise it; what three things can you do to make your entrance and exit easier to use? A booklet or leaflet should be distributed to every household where elderly or visually impaired people live.

Door Furniture

People with sight loss mostly say that they cannot find a keyhole, especially at night, even if familiar with their own door. The visually impaired person has to feel for everything very carefully such as keys at night and especially if there are two locks needed to open for entry this can be a huge problem. Keys should be easier to operate so you can feel the ring around the edge of a lock and the key can slide in. Keys and locks can now be supplied that can be used by placing the key in any direction into the lock. People have reported on the usefulness of fob keys that vibrate when in proximity of card reader and marker pens that put a foam line round things – both fluorescent and three-dimensional lines. People who use a pen have applied it all round their house on dials for various things like washing machines.

Door handles and locks need to stand out on a door; brass or chrome can be effective if on a dark green, red or blue door for example. White doors require a darker finish to provide the right contrast. Councils sadly do not provide door numbers any more. Perhaps there needs to be guidance on how they integrate a 'finder' into their own properties.

Handrails

Some residents in sheltered housing schemes say they hate the handrails as they define them in a disabled way, draw attention and create a stigma. Experiments with handrails and with LED lights underneath the rail have been

quite successful and people have preferred them. It is more tasteful than putting bright yellow lines on them and appears less utilitarian. Young people do not like handrails at all; it comes down to individual needs. Cold metal handrails are not liked as they uncomfortable to touch for any length of time, especially for people who have arthritis.

Accessibility and assistive technology

No-one wants their home building to look institutional or like a nursing home. Installing sensors to open doors is often assessed as too costly for local authorities to put in to refurbishments for people who are disabled. An intercom for an entrance two-way communication system needs to be tactile, visually highlighted and should be at the right height, with edges of screens defined. These new touch screens are sophisticated, not like a simple button with tactile functions.

> *"I don't have enough vision to see numbers so I have to memorise the keypad. It would help if the system talked to you. It would all work well if there was no background noise of traffic and speech making the sounds unheard".*

An important issue from the accessibility point of view would be an intercom's location; in a high position someone coming into the flats maybe unable to access it. The buttons aren't always tactile and there is no difference between the edges and buttons. The touch screen technology coming in for newer buildings will be a new disaster area because so many touch screens can be difficult to use.

While there are questions about how you design and refurbish, there are also other questions for homes and the built environment as to how you interact with what's already there. The most vital message is to provide clear information. Giving designers and architects clear examples, case studies based on evidence of best practice, showing how this works and why, as well as what doesn't makes sense. This empowers people to make independently creative decisions yet get things right.

> *"I'm living in a block of flats that has an intercom type of entranceway. One of the problems is that it doesn't work all the time!"*

The scope of technology, innovation and high-level intelligent sophisticated systems for elderly people and nursing homes is widening. But older people with low vision will rarely change from their old phone even to a new one because the new one always has some level of sophistication that proves difficult. Alarm systems now have touch screens that are too challenging for many. For entry and exit the best thing is a swipe card system which many visually impaired people would like. Even for setting an alarm you use a card or a fob and have to press it to access the alarm panel. Manufacturers need to consider sensory impairment in the design and new product development of these models.

Visual or audible cues are important. Designers often think about the use of sensors but it is not easy to understand the different types. A device that you could have in your pocket, which vibrates when you reach your front door or recognises your front gate for example, would be helpful. All these buildings being constructed with sensors everywhere could result in a major mess with poor use of the technology, so it all requires careful design and application.

Things need to be simple in design and easy to install, so that maybe visually impaired people themselves can be involved in fitting some items or assisting with installation. 80% of the building work in this country is in refurbishment; so the major part of this research is identifying problems in existing buildings, not necessarily new build projects. Hopefully the results may have an impact on all new building project though. There are two areas that need to be addressed - 1 is bringing information to the visually impaired people to access assistance for refurbishment and let them know what is available, 2 is for professionals such as occupational therapists and local authorities to provide these adaptations to existing building stock. You can integrate technology into new build projects but it is vital to understand the interaction between the environment and this particular group of people and their varying requirements. The question is could people easily have more control over their own home with well designed assistive technology?

A transmitter and receiver that signalled when you were near your home were developed by one company. The transmitter could be placed on the gatepost and a receiver in the hand which reacted, buzzing louder and louder when the gatepost was approached – it was a brilliant location device. There is a 2.5 million pound EU project going on at the moment with a large-scale company, Argus. They are asking visually impaired people what they want in terms of satellite navigation systems that could be incorporated into finding particular

buildings and even your own home. The postcode would be entered and the device used for visually impaired pedestrians.

Consistency is one of the key factors to help people with sight loss. For example, in an organisation or residential building having a consistent height for all swipe-card entry points would be very useful. Keyholes on different sides of the door, or at different heights, can prove difficult. Local authorities, designers, advisors and manufacturers need to consider the consistency of design and placement of door furniture for everyone with sensory impairment.

> *"In one home there is a phone next to the door with only three buttons. It's really simple. The top button opens the door and the next two set privacy and security, turning the phone off if you do not wish to be disturbed".*

Audible and sensory confirmation of a bell ring, as a feedback loop of some kind, is vital. Vibration of fobs, key rings or an entry system that has a vibrating fob if the front door bell is rung can be very useful. People tend to put their own doorbells on doors and having a feedback from pressing the button would be good, like in a hotel where you can flash a fob, you hear a click, then the light goes green.

> *"Mechanical things are less likely to break; it's cheaper and requires less maintenance. A fob system is used for a particular communal building I know at night and it seems to work well. We have been asked if tenants would be willing to use a system where you punch in a number but it's tricky. You have to be precise, learn the layout easily; I have trouble remembering my Credit Card number. Fobs and swipes are better and big ones at that. There are fingerprint systems but I don't trust this type of technology. Simple technology with sensors and lights coming on when entering helps. You can get an iPhone to open your door. It is geeky but possible to call your front door and open it or remotely set an alarm."*

Visually impaired people can feel vulnerable and fearful of things going wrong, so the simpler the better. Touch screens can be a nightmare and finding an emergency button in a lift that may have broken down can be something that causes panic and stress. Of course these points may relate less to younger people as they are more familiar with technology.

Daylight and Artificial Lighting

Approaching a building at night could be made easier with a path illuminated at the edges. There are markers that can be applied to footpaths, such as little sun-powered lights. Solar powered lighting could be very applicable to this sector. The problem is that someone has to pay to install and maintain it. Maybe the issue is how to market these products and have them readily available for people who need it. A path could be made of a light material such as a pale-coloured surface of resin bonded gravel or tarmac. Lights could come on either by motion sensors or maybe best if triggered by activating light levels, then on a dull day a path could be illuminated.

There appears to be a need to develop new security lighting that comes on immediately, can be low level lighting, and not produce glare or shock. These kinds of systems usually use a card like an oyster card rather than a key. People with visual impairment generally don't want a bright flashing light when approaching a door, as it is disorientating. In many situations people prefer dimmer switches, ones that slide up and down, as they can be turned to the right level of illumination for personal preferences.

Sometimes people have to travel some distance into a dark corridor in a communal building before the lights are triggered. A door opening could activate hallway lights quickly, which would be useful. Lights that edge corridors and don't shine in the face are effective for navigation. Lighting on walls that flood upwards is also helpful. For the front door or porch area, the automatic lighting should illuminate the door so people can see where to put their key. Most people with low vision need a light of some kind outside their front door but not everyone likes reactive lighting.

> *"A light coming on when approaching your front door and floodlights the entrance and seeing people who come to the door, helps me feel more secure".*

In Berlin, all the houses have illuminated house number plates as a matter of course. People's perception of what is possible is slow to develop so a leaflet might resolve some of these things and present some solutions, although people in social housing may have little control over what is being done to lighting.

"Low energy lighting was being put into homes and not bright enough, worsening people's situation. It wasn't me that was complaining but sighted people saying it was too dark".

Lighting is important and many different types are needed - movement sensors can suddenly flood light and throw people; a cost benefit analysis might find that keeping lights on low at a steady level the whole time after dark might be more economical. Low energy bulbs have historically not been popular but are now improving. Some people keep them on all the time and supplement them with additional lighting. Using a fluorescent light all the time would be a more economical solution than LEDs. Older people may also think that the energy saving bulb is a problem, taking so long to come on; however, the latest bulbs come on to full strength within seconds so it shouldn't be a problem.

We recommend transitional lighting in buildings, for example between a porch, lobby or entrance hall, especially in blocks of flats. It would be cheap to put a sensor in that understands the light outside and makes sure you are not going from bright to dark or vice versa very quickly. Transitional spaces that require eye adaptation to lighting changes, such as dark streets into a brightly lit flat, should be lit to a medium level to make that journey less difficult. It can take half an hour for a visually impaired person's eyes to acclimatise from a bright interior light to outside if dark or vice versa. Adaptation is something that a great many people mention yet it seldom gets dealt with in planning environments for people with problems from glare. It is very well known in accessibility circles that adaptation affects more than just visually impaired people. A couple of lights with appropriate sensors, which adjust and give you two or three options, would be most useful.

More lighting is not necessarily better than low lighting. It can make extremes of bright areas and areas of deep shadow, which may be worse than having no lighting at all. What helps the most is diffuse indirect lighting with other combinations; a solar panel at the end of garden on a fence for example, helped one person see how far to walk a dog. Solar lights can be stolen from front gardens though and more secure lights require extra money to install. Having lights on poles facing the front door and one close to the front door is useful.

We suggest that house designers who are working to specified lux levels should consider raising the levels slightly as this can improve visibility really

dramatically. It can also help to include better windows in hallways which let penetrating light in.

> *"When I saw your questionnaire I realised that my front door with a wall is not a contrasting colour. I've never done anything about it but I always struggle, even though I've lived there for a long time. Stupid isn't it? I should know but I struggled every day even though it's simple to put right. A sort of checklist for people to think like this is right. Because get it right for this group and you can get it right for everyone."*

If lighting is well designed it is not noticed as everything goes smoothly. Passive lighting along pathways is good and active lighting such as solar panels in key safe places can help. Creating a lighting strategy for the home that has flexibility, such as dimmable lighting, is key. Dimmable low energy bulbs are now available and some light fittings are designed for use with low energy bulbs that come on instantly with no flicker. Technology is evolving rapidly so it is a challenge for bulb manufacturers and LED lighting companies to provide incredibly low energy light that is bright and efficient.

Approaches, steps and ramps

Entrances have many hazards and older people and people with low vision have many issues with paths and steps. An entrance and exit area should have no more than one step, but older and disabled residents need a ramp. Maintenance of step nosing and use of non-slip paint can be a solution in one kind of environment but may not be applicable for all. Step nosing is a big issue because it is expensive and people resort to white or yellow painted lines.

Approaches to doorways should be designed to consider the person with low vision, as there may be boxes on walls near doors to house things like electricity meters and this can be dangerous. Too much tactile information on paving or walking surfaces is confusing and often gets laid incorrectly, giving conflicting cues. All steps and stairs should have uniform width and height, be smooth for cane users and have handrails that continue to the bottom of the steps. Zigzag edging of yellow and black on steps can trigger a seizure in some people.

"Do you think that there are people scattered around the country that don't have any specialist help from people such as Occupational Therapists or Sensory Impairment Teams?"
"Oh – yes"

Materials, Colour and Contrast

Colour and contrast are helpful and especially colour changes on the ground or floor. A red mat in the light flooring of a doorway of a bank, to indicate where a door swung open, was found to be useful for people with low vision.

"I need a lot of contrast in my house because my problem is that I need light but I suffer badly with any glare which disables me"

What is best is simplicity and having contrasting floors and walls. The actual colour may be irrelevant, especially to the proportion of visually impaired people who have colour vision impairment.

"What we have to do is get information available in a simple legible way that's directly accessible to people without a big skill set. If people on a planning committee have any interest in making developments accessible we need to have something we can go to that can give you pointers as to the key things you should be asking".

Exits

The exit area is a major topic for visually impaired people coping with independent homes and signposting which often does not lead you in the right direction. With very little usable sight it is not about navigation but about locating familiar things, especially if we are talking about own homes. Maximum contrast is important or bright yellow on the front edge of a front door step, for example. Entrance mats inside exit doors are not good for wheelchair users but if maintained correctly may be important for catching dirt and water before they can cause accidents and slips. Matting has to be level with the rest of the floor. Making sure that architects and public bodies understand properly these types of serviced products to minimise trips is important.

Handrails are really useful in an exit to a building and they should have a strong contrast but blend with the local colour scheme, so definitely not bright yellow or black. It would help visually impaired people when approaching a decision making point if they feel a change in surface texture or can see a colour or contrast change under their feet.

> *"I visited an apartment block in Germany – you walk into an entrance foyer, then sensors automatically put the light on so you could see where the doors were and everything like locks and keyholes. Just as you approach it lights come on, and it had lights inside and outside. When you got to the front door to exit you had lighting on so you can see what it's like outside as well. You even had automatic doors that tell you the doors' are opening".*

Summary

People with vision problems generally do not know what there is out there for them. An eye clinic liaison officer who is at the point of people's vision impairment registration could talk to people and advise them. That would be a great point at which to provide people with a Checklist of solutions. Doctors' surgeries are another place to make this information available. People are given information about losing their sight and then can be left in a wilderness. Social workers do have training in visual impairment but a large number of the visually impaired population are isolated and reaching these people is difficult. There may be a need for two checklists: one for designers and architects and another for visually impaired people and their families. There is also the problem of people's eye condition changing and deteriorating over time and an upgrading of facilities needing to be done by landlords, owners or associations. The changes themselves need to be adaptable.

Key products that are not only useful, but affordable and practical, need to be identified by this Checklist. New design could take into account basic issues, such as trying to stop people putting clutter at access points and outside communal exits, providing seating and clear signposting and using symbols at the right height to help wayfinding.

> *"I think that you have at Kingston identified key areas where better guidance would be useful or where a real difference can be made very simply".*

There is a lack of simple information and dissemination across all professions and information is not getting to the individual people in order to make changes. Some local authorities have done a lot, mainly because of all the regulations and awareness-raising through sensory impairment teams. Backing from high street businesses such as Vision Express might endorse interventions; they could distribute leaflets and initiate local action or inform new customers of the potential for support

We have to promote what is controllable, future-proof, adaptable and sustainable because people have personal choices in their own home. A job like painting the front door is simple but many people need help with it. When we hear that the local authorities contacted by the research team have not funded any specific adaptations for people with visual impairment in twelve months, this is very concerning and suggests a lot of low-cost and very beneficial minor works are being neglected.

Making contact with people who need help in obtaining what they are entitled to is largely dependent on local authorities and you may get assistance when you register as visually impaired.

> *"We are saying that every single person is different but your research could highlight most significant issues and achieve a statistic about the most common problems people have finding their front doors".*

See Appendix F for an account of the immediate impact that the Advisory Panel meeting had on one particular London Borough.

Feedback on Advisory Panel meeting

> *"I found the meeting useful as I was encouraged by the numbers of individuals from diverse backgrounds there. We need more information about how smell and tactile information can be used".*
>
> Jane Simpson, Jane Simpson Access Ltd

> *"It was very helpful hearing the wide range of views and experiences. I got additional insight into factors involved. It increased*

my ability to apply other people's practical experiences to vision aspects of access".

Martin Affleck, Martin Affleck Consultancy

"A very useful event and will attend again. This was a very good opportunity to meet like-minded people who have different professional experiences. The range of disciplines involved about the research has taught me about light and colour. I would like to know how we can use ideas from today's meeting with companies like B&Q to provide better access in old housing stock. A very useful update and event. One I would try to attend again*".*

Deborah Whelan, Governance and Information Officer, Oxfordshire County Council

"A very interesting project, well researched and involving a good mix of sensory impaired people and professionals. Good communication of the outcomes will be key to mainstreaming the findings to benefit as many people as possible."

Ruth Pink, Interim Operations Manager East, Wandsworth Council

"The event was very useful for me. It was a very good opportunity to let relevant persons know/be more aware of the problems VIPs face when accessing buildings/public areas/open spaces. Particularly so-called open space/free areas which are pedestrianised but very dangerous and confusing for people who are totally blind/severally sight impaired and also confusing for Guide Dogs too! Thank you for inviting me."

Christine Ward, Questionnaire respondent

Summary of comments on the feedback forms:

- The mix of professionals and sensory impaired people who shared their experiences made the Advisory Panel very useful/helpful to those attending
- Advisory Panel members hoped to find out about the research work, the insights from the range of professional disciplines involved, the

proposed recommendations and how the work will be progressed by attending the meeting

- Input from Occupational Therapists (OTs), Lighting Specialists, Access Consultants, Charities and expertise from Light Reflectance Values (Contrast) was particularly helpful and valued
- Cheap, cost-effective reversible solutions to help people with low vision were perceived as being a good method for making the built environment more inclusive
- Various ideas were implementable in Advisory Panel members work through: Assisting service provision in relation to access, marketing packs of basic items e.g. solar lights, maximising tonal contrast in doorways and paths to aid identification/use, application of other people's practical experiences to vision aspects of access and using landmarks in domestic housing situations including reflection
- Advisory Panel members wanted to know the final outcome of the research and wanted to still be involved/receive updates
- Others wanted to know more about using wayfinding for people with extremely low vision, and how the ideas discussed can be used to improve access to old housing stock
- Design and vision impairment is a very important part of planning adaptations to properties
- It is also important as a part of a holistic approach to access considerations
- Design or adaptation problems of entrances/exits encountered, included:
    - Managing communal entrances with fire safety doors and accessible entry-phones is often an issue
    - Insufficient 'policy' of colour/tonal values by approved inspectors/building control officers before a project is signed off
    - Generally, existing provisions that are audited by access consultants are below current standards for clear open widths, opening pressures and heights of vision panels
- It would be useful to know what particular types of lighting are useful for different situations and their cost-effectiveness
- More information on good door furniture design for people with a visual impairment would also be very useful. Companies should be interested.
- Many issues are covered by existing guidance, but it is difficult to continually follow all updates
- More guidance on the use of tactile information for people with low vision was felt to be required

- Clear and recognised guidelines, focus groups and identifying resources for independent information/advice would be useful to aid more accurate application of research and design
- It is important to raise designers' awareness and knowledge to aid a more accurate application of research and design
- An understanding of sensory issues such as lighting requirements, tonal contrast and how smell can be used would also help the application of research and design in the real world
- The following types of design decisions were dealt with by Advisory Panel members in environments for visually impaired people:
    - Lighting improvement, mobility and access, colour contrasting
    - Public buildings and the built environment
    - Wayfinding, approaches to buildings and accessibility
    - Ensuring the use of tonal contrast and tactile surfaces externally
- Current strategies employed to benefit the community of people with vision loss included the provision of accessible information and knowledge exchange events
- Other strategies involved specialist sensory impairment workers for vision/hearing impairment who carry out individual assessments, mobility training and user group involvement in their work
- Briefings, talks and close liaison with visual impairment services at councils was believed to be another good strategy
- Raising awareness, evaluating existing provision and use of best practice whenever possible is also a good approach to benefit the VI community
- There is a need for simple, practical guidance to the designers and operatives carrying out work; it's important to promote findings and guidance so they are heeded and used by the 'professionals'
- It is important to design things to be installed correctly the first time and there needs to be options for new builds or later customization
- The RNIB produce a felt pen with fluorescent foam that hardens to provide a visible and tactile indicator around items such as keyholes and equipment switches; this is a 'cheap and cheerful' solution that can be applied to doors/door furniture – simple!

Comment from specific groups and organisations

Housing LIN

The Housing Learning and Improvement Network (Housing LIN) is the leading knowledge hub for a network of housing, health and social care professionals in England involved in planning, commissioning, designing, funding, building and managing housing with care for older people.

With respect to this research project, Housing LIN stated that its 30-40,000 social care and healthcare members require:

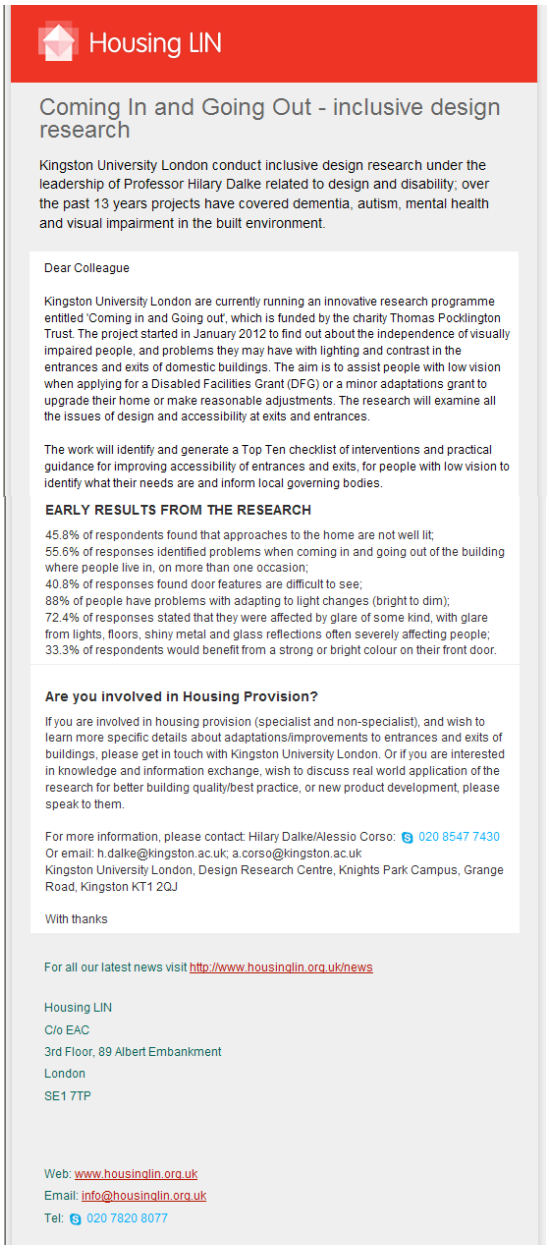
- Knowledge and information exchange
- Information and examples of better quality and practice
- Information on market testing

The Checklist should therefore aim to satisfy the following areas:

1. Provide access to good quality information
2. Provide specifics e.g. what adaptations/improvements can be made to entrances/exits of people's homes
3. Provide information that can be adopted by specialist housing providers i.e. housing providers for visually impaired people, or housing providers for people with multiple disabilities such as dementia and a visual impairment

Housing LIN circulated the following e-Newsletter in September 2012:

Fig 25 e-Newsletter



Housing LIN

Coming In and Going Out - inclusive design research

Kingston University London conduct inclusive design research under the leadership of Professor Hilary Dalke related to design and disability; over the past 13 years projects have covered dementia, autism, mental health and visual impairment in the built environment.

Dear Colleague

Kingston University London are currently running an innovative research programme entitled 'Coming in and Going out', which is funded by the charity Thomas Pocklington Trust. The project started in January 2012 to find out about the independence of visually impaired people, and problems they may have with lighting and contrast in the entrances and exits of domestic buildings. The aim is to assist people with low vision when applying for a Disabled Facilities Grant (DFG) or a minor adaptations grant to upgrade their home or make reasonable adjustments. The research will examine all the issues of design and accessibility at exits and entrances.

The work will identify and generate a Top Ten checklist of interventions and practical guidance for improving accessibility of entrances and exits, for people with low vision to identify what their needs are and inform local governing bodies.

EARLY RESULTS FROM THE RESEARCH

45.8% of respondents found that approaches to the home are not well lit;
55.6% of responses identified problems when coming in and going out of the building where people live in, on more than one occasion;
40.8% of responses found door features are difficult to see;
88% of people have problems with adapting to light changes (bright to dim);
72.4% of responses stated that they were affected by glare of some kind, with glare from lights, floors, shiny metal and glass reflections often severely affecting people;
33.3% of respondents would benefit from a strong or bright colour on their front door.

Are you involved in Housing Provision?

If you are involved in housing provision (specialist and non-specialist), and wish to learn more specific details about adaptations/improvements to entrances and exits of buildings, please get in touch with Kingston University London. Or if you are interested in knowledge and information exchange, wish to discuss real world application of the research for better building quality/best practice, or new product development, please speak to them.

For more information, please contact: Hilary Dalke/Alessio Corso: 020 8547 7430
Or email: h.dalke@kingston.ac.uk; a.corso@kingston.ac.uk
Kingston University London, Design Research Centre, Knights Park Campus, Grange Road, Kingston KT1 2QJ

With thanks

For all our latest news visit http://www.housinglin.org.uk/news

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Comments from a Housing Provider (Tower Hamlets Homes):

The following areas are the most common practical adaptations carried out for people with a visual impairment:

- The main adaptation that is carried out is enhanced lighting in the communal areas of blocks and in individual homes
- There is some marking of steps in communal areas
- Entry phones enable visually impaired adults to speak to callers before letting them in the main door
- Modest colour contrast in communal areas and in the internal flats e.g. floor and walls
- Braille and other symbols on the keys in lifts

Sensing Change

This charity has a number Rehabilitation Officers in its team who are trained to work with visually impaired people in Suffolk. The Rehabilitation Officers carry out lighting and access audits in homes and recommend suitable adaptations to meet the individual's needs. They seek funding for these adaptations and facilitate the process.

Summary of the issues discussed:

- Lighting Adaptations are very important to visually impaired people
- Lighting on landings is often very poor
- It is common to have only one light switch at the bottom of stairs, so people sometimes have to go downstairs in the dark
- The charity would like to put in sensor lighting but the local authority cannot afford such adaptations
- Painting of stairs and treads is very helpful to people with low vision

Occupational Therapist working in a housing association

- Automatic doors are good and have been fitted with a key fob entry system. However, key fobs can be lost (just like keys)
- Visually impaired people can be reluctant to go out late at night. They can also feel nervous about using automated doors with a key fob in case people loitering around outside sneak in behind them
- Good contrast is very important for doors, handrails, tarmac on front garden pathways

- If a glass door must be used, it is important to have large areas frosted to prevent visually impaired people having an accident
- British Standards recommend that lighting must not provide excessive glare, yet the direction of some sensor lights above front doors can point directly at someone approaching
- Signage should strive to provide a memory prompt for people: Using a combination of contrasting text and an image helps

6 Case study: Refurbishment of an entrance

Thomas Pocklington Trust provides housing for people with sight loss. The organisation owns properties in various parts of England, including London, the West Midlands and the South West. One of these properties is a basement flat in West London, which will be referred to as ‘Building A’.

Building ‘A’ was identified by Thomas Pocklington Trust as a good location to implement some of the main research findings in a real-world setting. A visually impaired resident had recently been re-housed to this property. The research team visited and spoke to the resident in depth about the issues he faced when coming in and going out of the flat. Having obtained the agreement of the resident, the research team:

- Carried out a design audit on the entrance and exit of Building A (see Appendix G)
- Measured the Light Reflectance Values (LRV) of all the surfaces and materials, such as the door, walls and floor paving and calculated the levels of contrast of materials that would be retained (Cromocon, 2012)
- Measured the light levels at the entrance and exit using a lux meter

The results from this visit and the audit of the entrance identified the problem areas that for a person with low vision that could be improved inexpensively, using the knowledge and expertise that the research project had accumulated. With this in mind, the research team proposed a series of recommendations for each problem, in specifications for Thomas Pocklington Trust.

Fig 26 **Building ‘A’ steps and entrance before refurbishment**

Recommendations to improve the entrance of ‘Building A’

Fig 27

1: Check street lighting with council: Is there sufficient light on the pavement?

Fig 28

2 (a): Re-paint the front old gate post strong black to make it easy to identify
2 (b): Consider a black or white planter with a dark or light leafed plant for a landmark

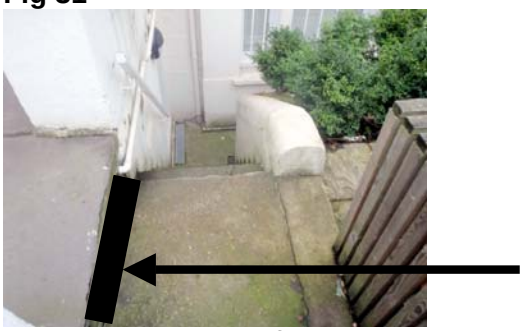
Fig 29

3: Paint step riser/lip black to define change of level with public pavement

Fig 30

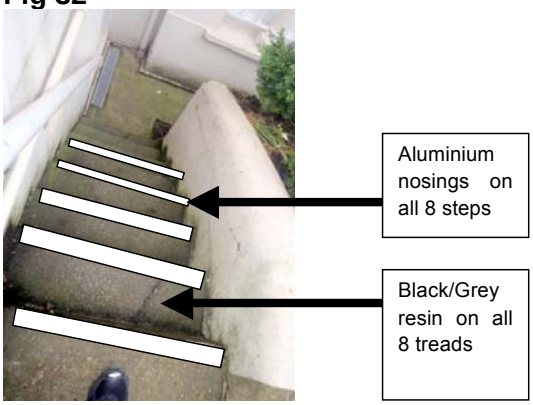
4: Upgrade front wall colour to NCS S1505 Y30R to brighten the façade for visibility

Fig 31



5: Render and paint lip of step dark grey/black to mark the potentially dangerous change of level

Fig 32

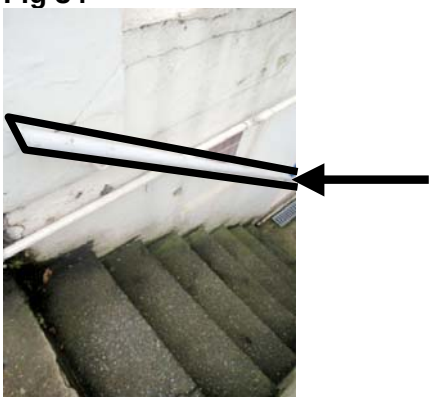


6 (a): Install step nosing on front of tread (x8) – AATi Aluminium SN30160, 2” deep front
6 (b): Backfill the tread (x8) with coated resin – AATi coloured resin infill, coated with anti-slip silicon carbide granules, DDA compliant (Colour ref: NCS S8502 R)

Fig 33

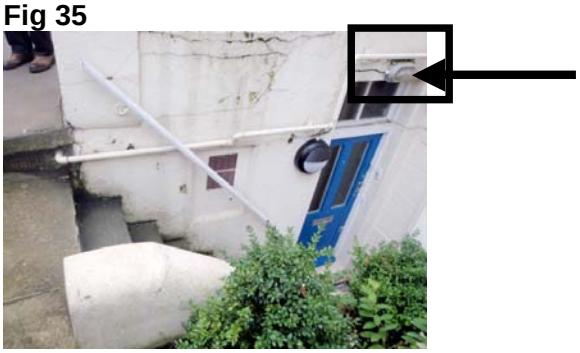
7: Paint wall and riser NCS S1505 Y30R to help on access to waste bins

Fig 34



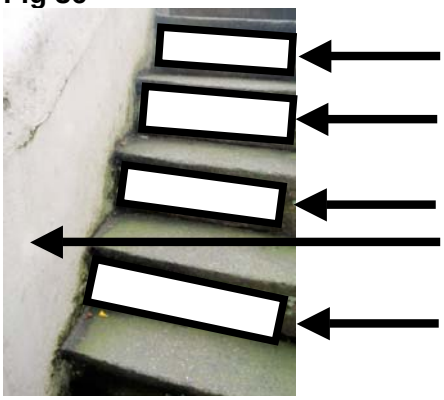
8: Paint the handrail NCS S2570 Y90R (or match to the eventual door colour)
Or install a warm to touch handrail in a contrasting colour to the wall

Fig 35



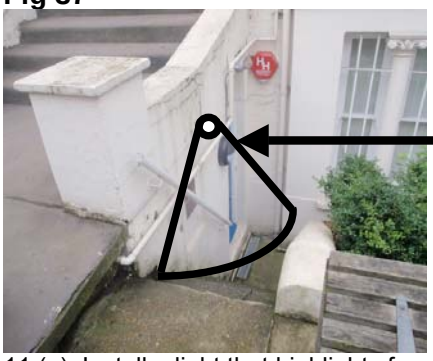
9: Replace the outside light with one that directs light downward onto the door and step.
For example B&Q tube light. A good example of an ideal lamp is available from Thorlux
(Model name: REALTA/Minor)

Fig 36



10: Paint side wall and risers (NCS S1505 Y30R) before step nosing is installed and the resin tread is backfilled

Fig 37



Thorlux Realta (above) is a programmable light with two functions: A sensor to come on when there are low light levels/sensor switches on with movement to highlight steps

11 (a): Install a light that highlights from the top step down to the bottom
(b): Connect power supply to the newly installed light

Fig 38

12: A dangerous threshold, not accessible, but necessary to avoid flooding as it is a basement flat. Look into possible slope or raise a section of flooring inside the door entrance to allow wheelchair access.

Fig 39

13: Paint front door with NCS S2570 Y90R to contrast with chrome door furniture. (Chrome would provide the highest contrast with a dark door) or replace with a new solid door.

Fig 40

www.worksplace.com

B&Q

14: Install high contrast door number – this could be photo-luminescent

Fig 41

Resident finds the hook useful to locate keyhole below and pull door closed

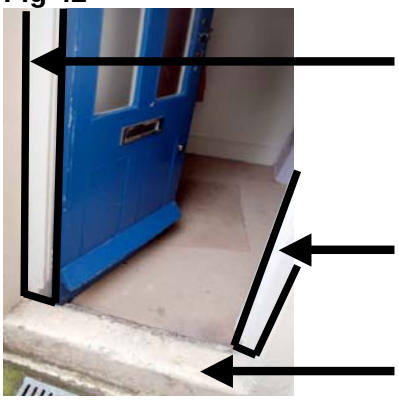
Lock example

Multipoint Door Locking System – Cobra AV2 with one key high security

15 (a): Replace lock with bright chrome lock (example available from B&Q)
(b): Replace letterbox with a chrome one

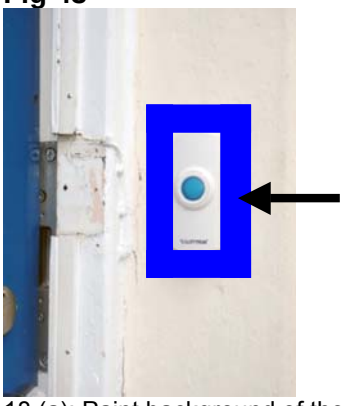
Key which can enter the cylinder in direction KABA 20

Fig 42



16: Paint door frame same colour as the door so the open side can be seen against white walls when door is open (this recommendation is specific to this door only)
17: Paint threshold step the same colour as the walls

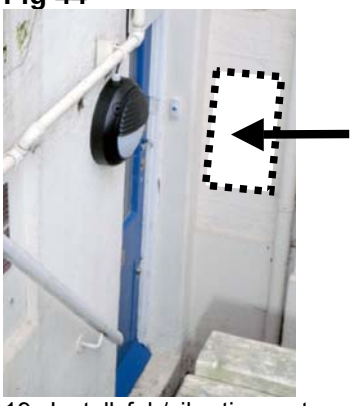
Fig 43



5cm (2" approx.) band around doorbell, or Ecoglo strips

18 (a): Paint background of the doorbell the same colour as the door to make it stand out
18 (b): Place Ecoglo strips above doorbell and door lock

Fig 44



19: Install fob/vibrating entry system to identify the front door (for example from Home Easy)

Fig 45

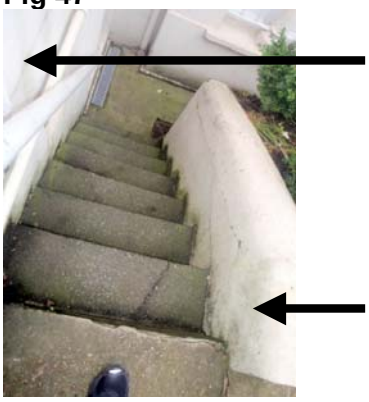
20: Replace light switch inside front door with a dimmer switch to help balance lighting from inside to outside

Fig 46

21: Install a dark entrance mat inside the front door that contrasts with the threshold (www.gradusworld.com)

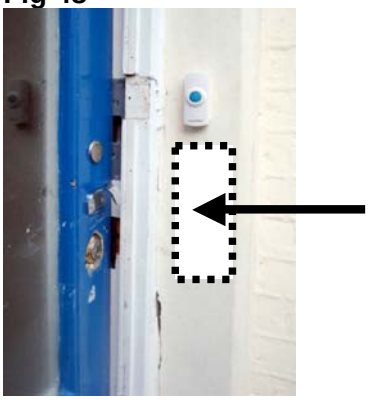
22: Wood non-slip PVC recommended in corridor

Fig 47



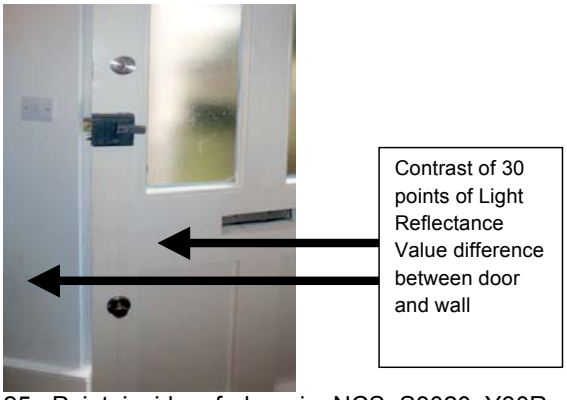
23: Re-paint walls adjacent to steps left and right with NCS S1505 Y30R (current colour measured with meter) (Cromocon 2004) to conserve the heritage colour

Fig 48



24: Install accessible intercom system or some form of entry device

Fig 49



25: Paint inside of door in NCS S3020 Y30R, which provides 30 contrast difference between the door and white wall

Fig 50

26: Check random pipe and remove or paint dark to show up on step

Fig 51

27 (a): If new flooring is installed, consider a slope or ramp down from the threshold or raise the flooring to the threshold

Fig 52

28 Ensure glass is secure, and consider replacing door or double glazing with security glass

The Completed Refurbishment

Fig 53

Following the recommendations outlined in the previous specifications, Thomas Pocklington Trust implemented a refurbishment of the entrance of Building A. The resident can now approach the entrance to the building with confidence. Painting an ornamental post to contrast with a pillar is a vital landmark for the guide dog.

The low wall has been repainted and steps replaced with new highly visible nosing and non-slip darker treads.

Fig 54

Fig 55

The non-slip dark steps and risers show up well against the newly painted light wall. The bright metal nosing highlights the edge of each step. A strong dark red paint colour is very successful at contrasting the handrail on the wall leading down to the front door.

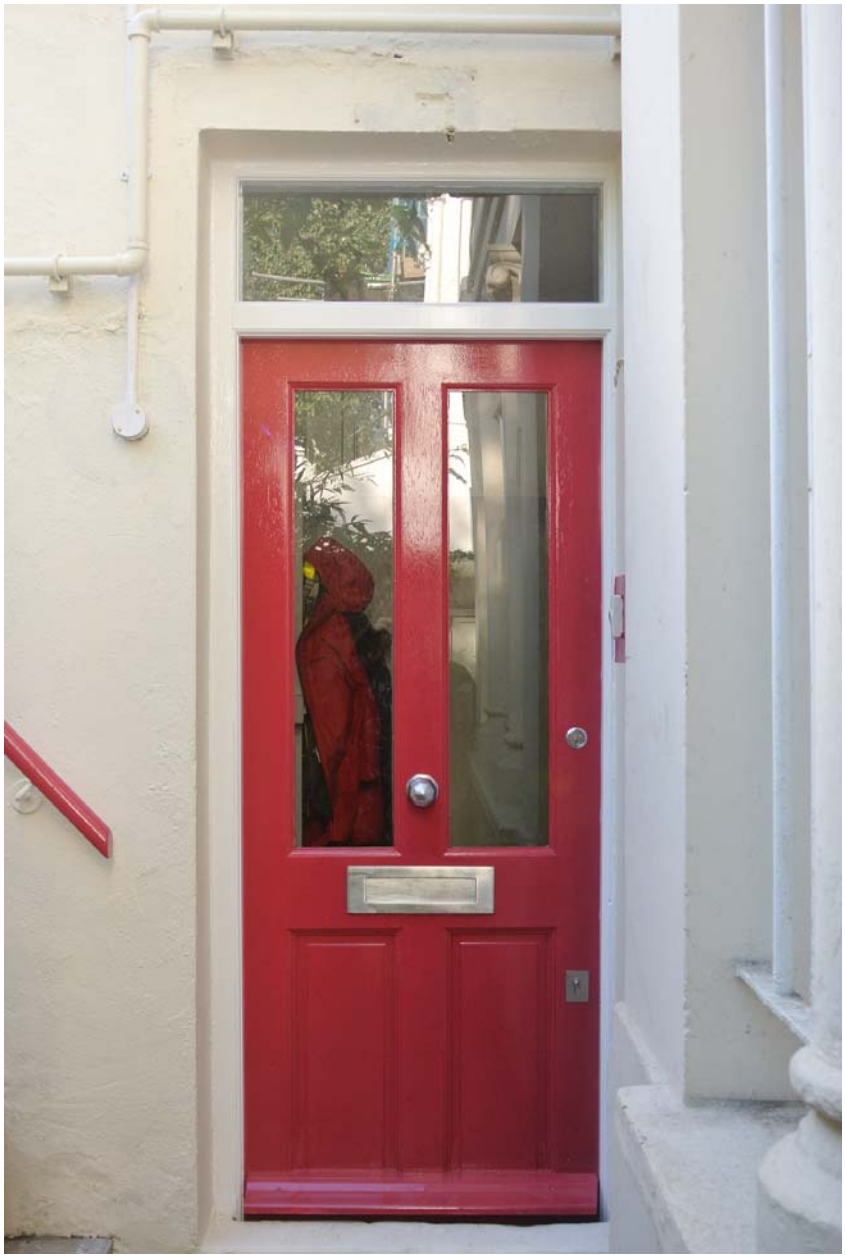
A swatch painted around the bell on the wall beside the front door gives the resident a cue for locating the button both during the day and in the evening. An external light (not visible in the photograph) shines a valuable light onto the steps at night.

The resident can now find the bright chrome lock, key hole, letter box and door-pull mounted on the newly painted dark red door. Finding the steps down and entering the front door is now an easier activity to accomplish in the day and evening. These simple improvements give the resident with sight loss more independence in coming in and going out of their home.

Fig 56

The completed job entailed several skills and tasks that would easily be accomplished with support from the Disabled Facilities Grant fund. It should make his life more enjoyable to be able to have the freedom to trust entering and exiting his home in the day and at night. The difference it makes for him and the success of this small project needs to be summed up by the resident though…

"The restoration work makes it easier to live here because you can see things. There's no help, the dog won't get you up the front stairs when you can't see them, you've got to trip over them....so now they're easier to see and it just makes everything a lot easier".



7 Checklist

1. My front door

“It would be helpful to identify my own front door from a distance”

Hints and tips:

• An exterior door painted a colour that contrasts strongly with the front of the building – either lighter or darker
• A personal door inside a communal main entrance painted a different colour to make it stand out
• An intercom or easy entry system that works remotely with a vibrating fob or mobile phone to alert a person to the nearness of their door or home

2. Door handle

“I can’t see my door handle on my door”

Hints and tips:

• A door handle that is in a strong contrasting colour to the door is useful
• A coloured, metal chrome, brass or steel door handle that contrasts with your current door colour; a dark door shows up the bright metal, and a light door could have a contrasting coloured handle
• A door handle at your personal entrance that is highlighted by luminescent strips, directed lighting or is photo-luminescent

3. Keyhole and lock

“It’s difficult to locate the keyhole and lock on my door”

Hints and tips

• A keyhole and lock in a strong contrasting colour or metal finish on the door; on a pale door a darker metal coated keyhole and lock is best.
• A bright metal satin, chrome, or brass lock that contrasts with the darker coloured door
• A keyhole or lock with an edge or lip that is easier to identify by touch
• Existing keyhole and lock highlighted with a hard tactile marking outline
• A security lock that accepts a key entry in any direction

4. Walls

“I have trouble seeing where my front door actually is”

Hints and tips:

• An exterior wall painted a lighter or darker colour than the door; a Light Reflectance Value (LRV) difference of at least 50 is useful for the door to be seen at a distance (see note 1)
• The wall painted a contrasting colour to the door frame and the door; this helps a person see where the door is, and the edge of the door frame when the door is open

5. Lighting

“I dislike bright glare and dark areas where the lights don’t come on”

Hints and tips:

• Lighting which automatically shines on the front door, or the entrance or exit when approached helps

• Lights that are set to come on automatically when light levels are low at different times of the day

• Light on the front doorstep or pathway is important at night

• Automated sensor lights highlighting the doorstep when approached

• Better lighting on the door inside the exit

6. Door number

“**I can’t see my door number and a lot of homes look the same”**

Hints and tips:

• A high contrast number and background large enough to see from a distance

• A house number plate contrasting with the background colour of the wall or door

• Chrome numbers on a dark door or black numbers on a white door

• A luminescent house number that is clearer to see at night

7. Landmark

“I need something to help me to identify my home and entrance when I am near”

Hints and tips:

• A contrasting landmark that is located near the front door or on a post at the entrance
• A sign, number or location for the property or house
• A white, highly visible plant tub that can be seen from a distance at night
• Existing metal or wooden post or gate at the entrance can be painted a contrasting strong colour from its background

8. Steps

“I can’t see very easily where the steps start and end”

Hints and tips:

• Contrasting step nosing installed on the front edges of exterior or interior steps or stairs. Contrast should be 60 points of LRV difference (Cromocon, 2012)
• Painted line on edge of step can be done in a lighter colour or darker colour than the step as long as it contrasts with the step itself
• Steps re-surfaced with quality non-slip material and contrasting nosing
• Left and right side walls of the steps, or stairs painted with a contrasting colour, deep contrasting side bands applied to identify the zigzag of the steps; could be part of an exterior colour scheme

9. Handrail

“I need a handrail to guide me coming in and going out of my home”

Hints and tips:

• A handrail that contrasts with the exterior wall; could be the same as a front door colour as long as it contrasts with the wall
• A handrail that is tactile and comfortable to touch - not bare metal and could be painted or wood
• Interior handrails inside the main entrance leading to a personal front door are useful

10. Ramp

“I find steps difficult to climb and can slip or trip over them”

Hints and tips:

• A ramp, with handrails outside the main entrance and exit to the property can stop falls and provide easy wheelchair access
• Lighting on a ramp
• Install LED lights on the sides of existing ramps to aid access and navigation

11. Flooring

“I have got trouble with my flooring in the entrance”

Hints and tips:

• Flooring that contrasts with the walls and skirting inside the front entrance of the building helps orientation; matt floors not shiny help
• Flooring that is even and non-slip in wet weather inside the front door or entrance provides security
• A flat absorbent, fitted door mat that contrasts with floor and helps mark the entrance and exit
• Repair damaged flooring or replace to avoid trips

12. Paving

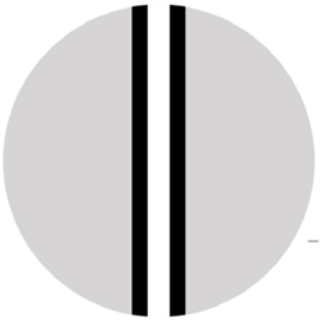
“The path isn’t very clear or easy to see”

Hints and tips:

• Even level paving outside the entrance or exit to avoid falls
• Paving or a pathway that is in a contrasting colour surface to the grass, gravel or tarmac next to it
• A path that is identifiable from the street paving
• Path a path or area in front of the home that is a different texture is helpful for identification of own entrance

13. Glass doors

“Glass doors cause me problems and never know if they are open or not”



Hints and tips:

• Stickers, signs or contrasting manifestations mounted onto glass door panels
• Marking strips on glass door edges to indicate they are open or closed
• Automatic glass doors that have audible sounds or voice when opening or closing
• Contrasting touch sign for the automatic opening door that is easy to see

14. Navigation lights

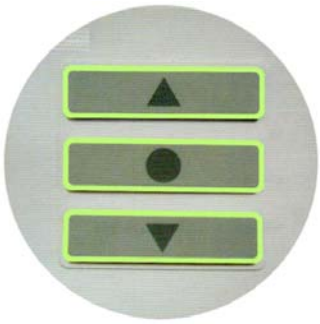
“At night I can’t see my path so I don’t go out”

Hints and tips:

• A post lit with LED lights at the front of the property, installed to light up the entrance, which acts as a landmark during the day and night (Paviom)
• Highlight the sides of pathways with luminescent materials or LEDs that can be seen at night
• A light sensor that comes on when entering the area of a property
• Surface any entry path or point with a lighter or darker material from the main street; resin bonded pale chips, or lighter paving

15. Lift buttons

“Lift buttons are always hard for me to use as I cannot see where they are”



Hints and tips:

• Buttons highlighted with a tactile marker for touch recognition
• Photo-luminescent strips may provide some help in identifying lift buttons
• Panels that emit light to locate them easily and indicate floors

Notes

Note 1: A minimum Light Reflectance Value Difference of 30 points is recommended for contrast but this depends on size of object, lux levels and distance away from the observer (Dalke, 2011): visit www.cromocon.com for more information.

Further advice may be obtained from:

1. My front door www.besam.co.uk www.cromocon.com www.laidlaw.net www.tormax.co.uk	**2. Door handle** www.assaabloy.co.uk www.laidlaw.net	**3. Keyhole and lock** www.assaabloy.co.uk www.ecoglo.com www.laidlaw.net www.rnib.org.uk www.livingmadeeasy.org.uk www.kaba.co.uk
4. Walls www.cromocon.com www.eico.co.uk www.crownpaint.co.uk	**5. Lighting** www.erco.com www.thorlux.com	**6. Door number** www.ecoglo.com www.worksplace.com
7. Landmark www.ecoglo.com www.rivermead.com www.worksplace.com	**8. Steps** www.aati.co.uk www.gradusworld.com	**9. Handrail** www.gradusworld.com www.laidlaw.net www.suregrp.com
10. Ramp www.sesameaccess.com www.theramppeople.co.uk	**11. Flooring** www.altro.co.uk www.gradusworld.com www.interfaceflor.co.uk www.millikencarpet.com	**12. Paving** www.marshalls.co.uk www.ecoglo.com (for edgings)
13. Glass doors www.besam.co.uk	**14. Navigation lights** www.paviom.com www.worksplace.com	**15. Lift buttons** www.ecoglo.com www.sesameaccess.com www.livingmadeeasy.org.uk www.rnib.org.uk

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Appendix A
DFG support from seven local authorities

The following table summarises the key issues surrounding Disabled Facilities Grants (DFG) from seven of our collaborating local authorities.

Results of discussion with councils	COUNCIL G	COUNCIL K	COUNCIL I	COUNCIL R	COUNCIL N	COUNCIL D	COUNCIL H
Financial support to live independently and support rehabilitation, mobility training	■	■	■	■	■		■
Means tested DFG	■	■	■	■	■		■
Referred to the Access Service who have eligibility criteria (substantial/critical etc)				■		■	
Application through Social Care Support							■
Personal needs questionnaire (self-assessed)				■			
Support planning (usually a sensory worker completed specialist support plan , not a generic social care support plan)				■			■
Referral from any source (GPs, OTs etc.)	■	■	■	■	■	■	■
Assessment of VIP carried out by an OT for a DFG	■	■	■	■	■	■	
Assessment of VIP carried out by Sensory Impairment Team for a DFG				■			
Work to be carried out determined by a surveyor or Environmental Health Officer	■	■					
Sensory/Vision Impairment teams part of Community Care Independence Services						■	
Work to be carried out determined by the council	■	■	■	■	■	■	■

Minor adaptations under £1,000 arranged by Sensory Impairment Workers (Social Services) - budget for equipment and items or can loan items								
Minor adaptations to private properties arranged by OT under £1,000 (or arranged by Sensory Impairment Team. Also known as community equipment services)								
Minor adaptations to council properties arranged by Housing Department under £1,000								
Maximum grant 30,000								
No contribution required from people on benefits and low income								
Private tenant can make own application with landlord consent								
Landlord can make application								
No ability to enforce landlord to adapt property								
Can inspect property and use Housing Act 2004 to assess 29 risks from hazards								
Essential Repair Grants (ERG) also available up to £5,000								
Flexible Home Improvement Loan available up to £100,000								
Small Repairs Service available (£15 p.h. + vat)								
Average spend on DFG for visually impaired people		£0 in last 12 months		£0 in last 12 months (* NOTE 1)				
NOTE 1: All adaptations for sensory impairment specific needs have been able to be covered by minor adaptations budgets. However there will be people with dual physical & SI disabilities receiving DFGs but this is not recorded separately								

Appendix B
Questionnaire: Hardcopy Format

COMING IN AND GOING OUT:
Domestic entrances and exits for people with sight loss

Project Leaders:
Hilary Dalke, Professor of Design
Alessio Corso, Research Fellow
Kingston University London
Design Research Centre
Faculty of Art Design and Architecture
Knights Park Campus
Grange Road
Kingston KT1 2QJ

This questionnaire forms part of a nine month study by Kingston University London for Thomas Pocklington Trust.
We value your input: you can get help to complete this form.

We can supply a paper copy of the questionnaire for you to fill in and post back to us. We will refund your postage costs. **For more information about the study, alternative formats, or to arrange for our team to fill in the questionnaire with you please contact:**

Introduction

We want to find out about the experiences that people with visual impairment have when coming in or going out of their home or public buildings. We want to find out how entrances and exits can be improved for people with sight loss here are 37 questions to answer and it may take you about 20 minutes to complete the form. You may want to take a break whilst completing the questionnaire: it is important to the study that you answer all of the questions wherever possible.

You can fill in the questionnaire with the help of a friend or family member if you would like to, but the answers must be from your experiences.

The contents of this form are absolutely confidential to the research team and information identifying 'you' will not be disclosed under any circumstances. All information will be held on computer during the project and deleted at the end and is subject to the Data Protection Act.

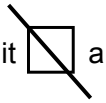
We know that people with sight loss find that good contrast, with the strategic use of colour and lighting combinations, helps them understand and get around buildings confidently . Entrances and exits to buildings and homes present particular difficulties because there are often extreme changes in lighting levels that affect the way the eye adapts.

What we find out in this study will help people with sight loss to live independently and to get out and about. Findings will be used to write practical guidance to help landlords, housing and care services make housing and other buildings more accessible for people with sight loss.

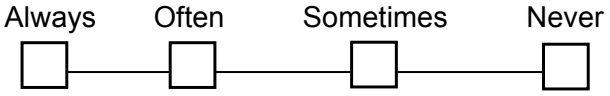
How to fill in the questionnaire

There will be boxes for you to tick, which look like this: ☐

Please put a tick in the box next to the answer or answers that apply to you.

If you make a mistake, please cross through it  and tick the correct reply.

There will also be a choice of answer options such as:



Please tick the box that shows the answer, or answers, which apply to you the closest.

About You

Thank you for taking the time to complete our questionnaire. Before we proceed, we'd like to know a little more about you and your vision. All information is treated with complete confidentiality. The first 7 questions ask for your name and contact details. If you do not want to give us this information, please move on to next section.

1. Name .....
2. Address .....

   .....

   Postcode …….....
3. Telephone …….....
4. Fax …….....
5. Email …….....
6. Gender: Male ☐ Female ☐
7. Age range:

   I do not wish to state ☐

   18-35 ☐ 36-55 ☐ 56-75 ☐

   76-85 ☐ 86+ ☐

Your Vision

We'd like to know about your eye condition(s) and your vision.

8. What is your visual loss?

   ☐ Central vision

   ☐ Peripheral vision

   ☐ General vision

   ☐ Don't know

9. What is the medical name of your eye condition (if known)? **You may tick more than one answer**

- ☐ I do not wish to say
- ☐ Age-related macular degeneration (AMD)
- ☐ Cancer related sight loss
- ☐ Congenital cataracts
- ☐ Cataracts
- ☐ Diabetes related eye conditions
- ☐ Glaucoma
- ☐ High degree myopia
- ☐ Nystagmus
- ☐ Retinal detachment
- ☐ Retinitis pigmentosa
- ☐ Other (please specify) .....

10. Do you have any problems with your colour vision?

Yes ☐ No ☐ Don't know ☐

11. If you have problems with seeing colours, could you please tell us more about it below.

…….
……..
…….....
.....

12. What is your Visual Acuity (e.g. 6/60), if known?

…….....

.....
...

13. Are you registered:
    Partially sighted ☐ Blind ☐ Not registered ☐

14. Do you regularly use any of the following?

    ☐ Cane (all forms)

    ☐ Guide dog

    ☐ Digital or electronic devices

    ☐ Assistance from another person

    ☐ Optical magnification

    ☐ Telescopic devices

    ☐ Special lenses

    ☐ High power spectacles

    Other .....

15. Is one eye more severely affected than the other?
    Yes ☐ No ☐ Both eyes equally affected ☐

16. For the following 9 questions, **with or without vision aids, can you:**

Tell by the light coming in where in a room the windows are?
Yes ☐ No ☐

Can you see the shapes of furniture in a room?
Yes ☐ No ☐

Can you see well enough to recognise a friend if close to his/her face?
Yes ☐ No ☐

Can you see well enough to recognise a friend who is at arm's length away?

Yes ☐ No ☐

Can you see well enough to read a newspaper headline?

Yes ☐ No ☐

Can you see well enough to read a large print book?

Yes ☐ No ☐

Can you see well enough to recognise a friend across a room?

Yes ☐ No ☐

Can you see well enough to recognise a friend across the road?

Yes ☐ No ☐

Can you see well enough to read ordinary newspaper print?

Yes ☐ No ☐

17. Is there anything other than your vision that affects your mobility?

Yes ☐ No ☐

Other ……..…….....
…….
……..

18. Do you have problems when:

Moving from a brightly lit to a dimly lit area?

Yes ☐ No ☐

Moving from a dimly lit to a brightly lit area?

Yes ☐ No ☐

19. Are you severely affected by glare from the following?

	Always	Often	Sometimes	Never
Ceiling (lights)	☐	☐	☐	☐
Floor (shine)	☐	☐	☐	☐
Walls (white/shiny)	☐	☐	☐	☐
Shiny metal	☐	☐	☐	☐
Glass reflections	☐	☐	☐	☐
Windows	☐	☐	☐	☐

Other.....

Your building and front door

Note: For the questions with multiple answers, please tick all the answers that describe your experience.

20. What type of building do you presently live in?

- ☐ Detached single-unit housing (e.g. Bungalow, house, farmhouse)
- ☐ Semi-detached housing
- ☐ Multi-unit housing (e.g. Bedsit, maisonette)
- ☐ Moveable housing (e.g. Mobile home)
- ☐ Apartment block (e.g. Flat)
- ☐ Care home
- ☐ Other (please specify).....

21. Is the entrance to your home:
    A shared/communal entrance?
    Yes ☐ No ☐

    A personal entrance?
    Yes ☐ No ☐

Approaches to your home

22. What is the approach to your home entrance like? Tick all that apply.

- ☐ A pathway
- ☐ A driveway
- ☐ A front garden
- ☐ A ramp without handrails
- ☐ A ramp with handrails
- ☐ Outdoor steps or stairs without handrails
- ☐ Outdoor steps or stairs with handrails
- ☐ Outdoor steps or stairs without a contrasting band on the step nose
- ☐ Outdoor steps or stairs with a contrasting band on the step nose
- ☐ It is wheelchair accessible
- ☐ It is not wheelchair accessible
- ☐ It is well lit
- ☐ It is not well lit
- ☐ Other (please specify).....

Approaches to your Exit

23. What is the exit to your building like? Tick all that apply.

- ☐ A personal exit into a communal area and then a second exit
- ☐ A personal exit directly to the outdoors
- ☐ A higher level floor then a lift to the ground floor
- ☐ A higher level floor then stairs to the ground floor
- ☐ A personal exit
- ☐ A communal exit
- ☐ An indoor ramp without handrails
- ☐ An indoor ramp with handrails
- ☐ Indoor steps or stairs without handrails
- ☐ Indoor steps or stairs with handrails
- ☐ Indoor steps or stairs without a contrasting band on the step nose
- ☐ Indoor steps or stairs with a contrasting band on the step nose
- ☐ It is wheelchair accessible
- ☐ It is not wheelchair accessible
- ☐ It is well lit
- ☐ It is not well lit
- ☐ Other (please specify).....

24. Have you ever had any problem(s) Coming In or Going Out of the building that you live in?

- ☐ Never
- ☐ Once
- ☐ A few times
- ☐ Many times

25. Please tell us about the problem(s) and the reasons why you think they happened.

……
……
……
……
……
.....
.....

Coming In or Going Out

26. When Coming In or Going Out of your home, what problem(s) do you encounter?

- ☐ Adjusting to lighting changes between the outside and inside of the entrance
- ☐ Poor or inadequate lighting outside
- ☐ Poor or inadequate lighting inside
- ☐ Poor contrast at the entrance point (e.g. seeing a door in the wall)
- ☐ Steps or stairs do not have a contrasting band on the step nose
- ☐ Switch or lift panels are not visible to me

☐ Too much visual clutter

☐ Door features and ironmongery are difficult to see (e.g. where to put the key)

☐ Entrance mats on the floor

☐ Tripping hazards

☐ Other (please specify).....
.....
.....
.....
.....
.....
.....
.....

Lighting

27. Where you live, how would you describe the lighting in the following areas:

	Very good	**Good**	**Neither good nor poor**	**Poor**	**Very poor**
Outside the entrance	☐	☐	☐	☐	☐
Inside the exit	☐	☐	☐	☐	☐

☐ Other (please specify).....
.....
.....
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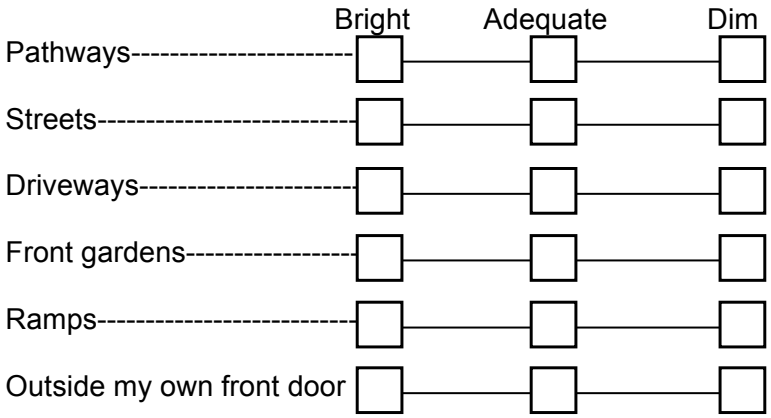
.....

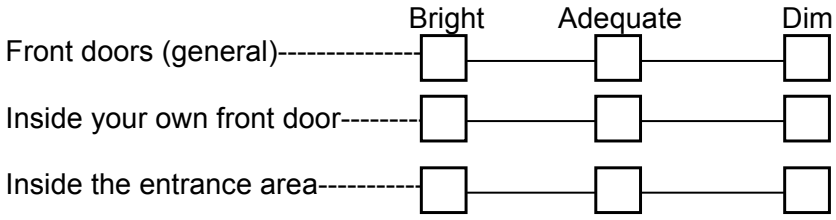
.....
.....

28. When approaching and exiting your home at night, how do you find the light levels in the following places:



Other (please specify).....
……
……
……
……
..

29. When going out of your building at night, how do you find the light levels in the following places:



Other (please specify).....
……
……
……

…….....
.....

30. What type of lighting could improve your entrance or exit area?
…….
…….
…….
…….
…….
…….
…….....

Colour and Contrast

31. What would make it easier for you to Come In and Go Out of your home?

- ☐ Increased contrast between the door edge/frame and the door
- ☐ Increased contrast between the door and the wall
- ☐ Increased contrast between the key lock and the door
- ☐ Increased contrast between the door handle and the door
- ☐ Less visual clutter
- ☐ Avoiding particular colours on important door features
- ☐ Avoiding particular material finishes on important door features
- ☐ A strong or bright colour on the front door
- ☐ Other (please specify).....
.....
.....
.....

.....
.....
.....
.....

32. What colours and contrasting features make Coming In and Going Out easier for you?

.....
.....
.....
.....
.....
....

Final Comments

33. Are there any features or devices that you like because it makes Coming In and Going Out easier for you? Such as: automated doors, lighting that automatically switches on etc.

.....
.....
.....
.....
.....
.....

34. Have you come across entrances or exits to buildings that are easier for you to use?

Yes ☐ No ☐

Please tell us what made them easier:.....
.....
.....
.....
.....
.....
.....

35. Can you suggest other ways of making the design of entrances or exits to your home or to public buildings more accessible for people with sight loss? Such as: type of door etc.
.....
.....
.....
.....
.....

Future Contact

36. Would you like to help us further with our research?

Yes ☐ No ☐

37. Would you like to receive information about the research results?

Yes ☐ No ☐

If yes, we need your address: Please ensure that you have completed questions 1-5

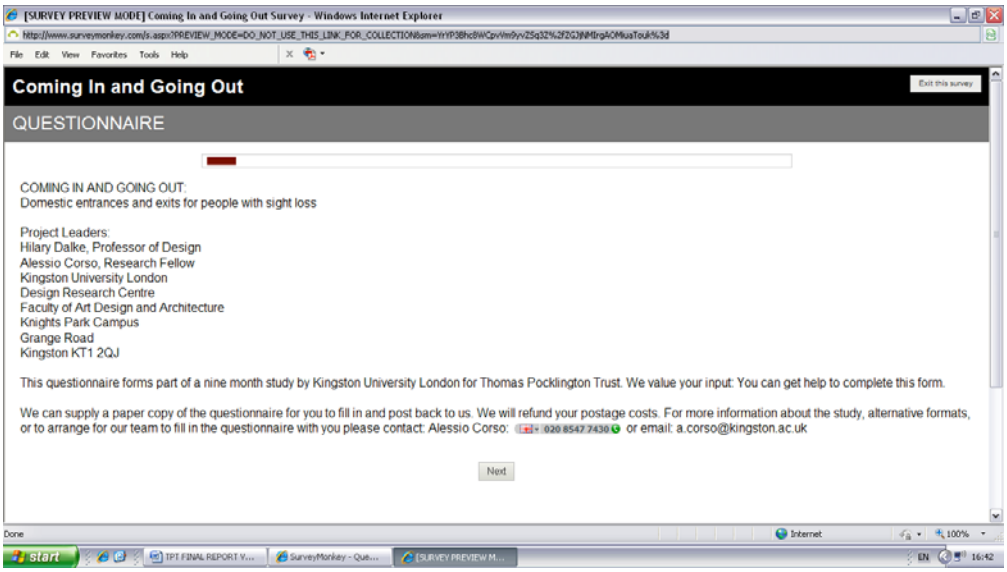
Final thanks!

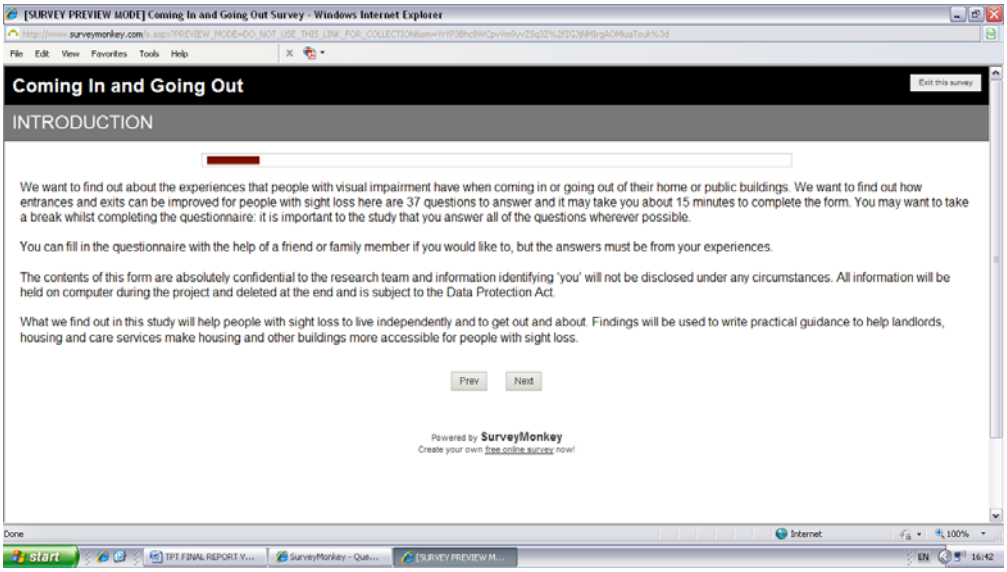
Once again, thank you for completing this questionnaire. Without your help we would not be able to do this very important part of our research. The results will be used to help make it easier for people with sight loss to apply for upgrades for their entrance or exit.

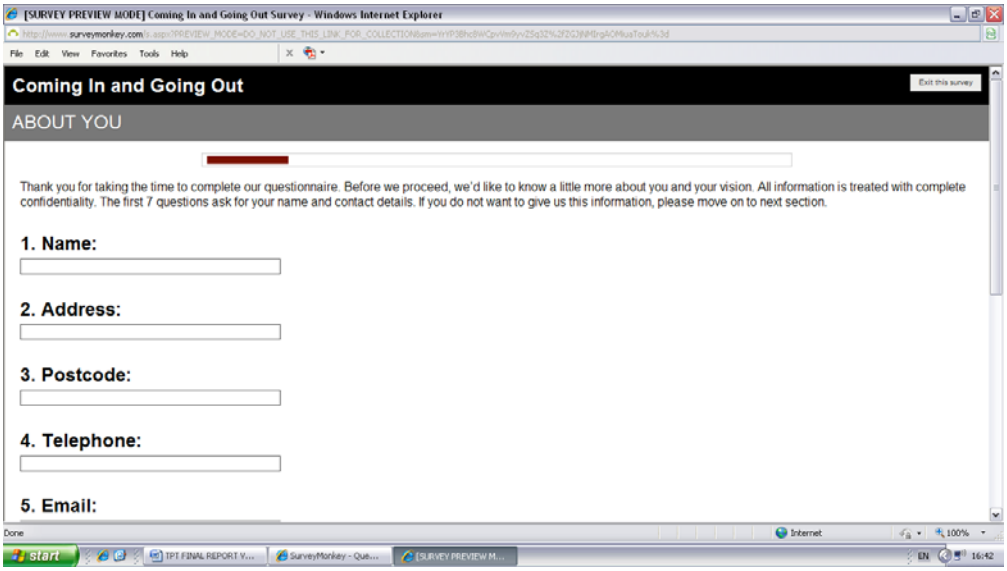
Confidentiality Statement

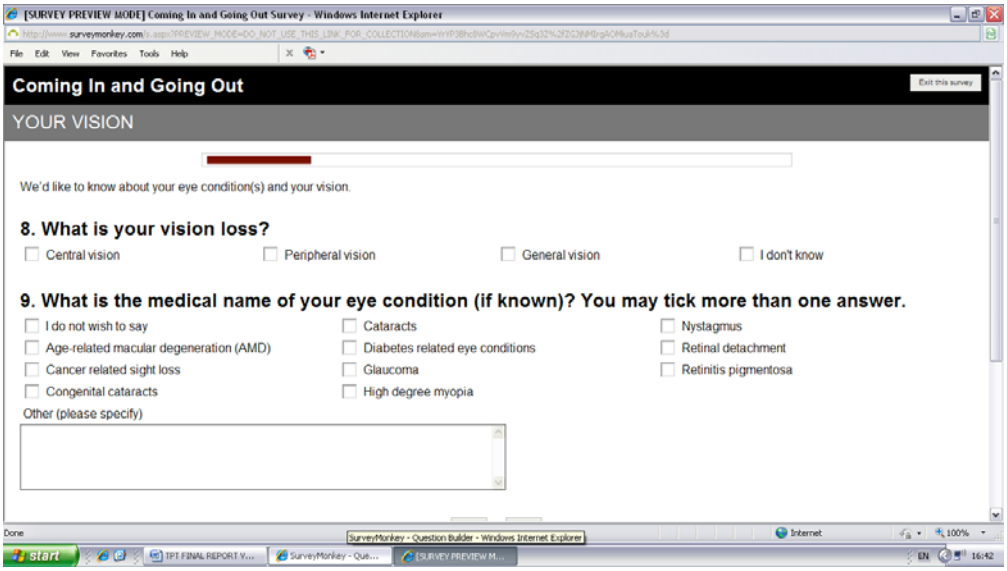
May we take this opportunity to remind you that the contents of this form are absolutely confidential and information identifying 'you' will not be disclosed to anyone outside the project team under any circumstances. All information is held on computer, then deleted, and is subject to the Data Protection Act.

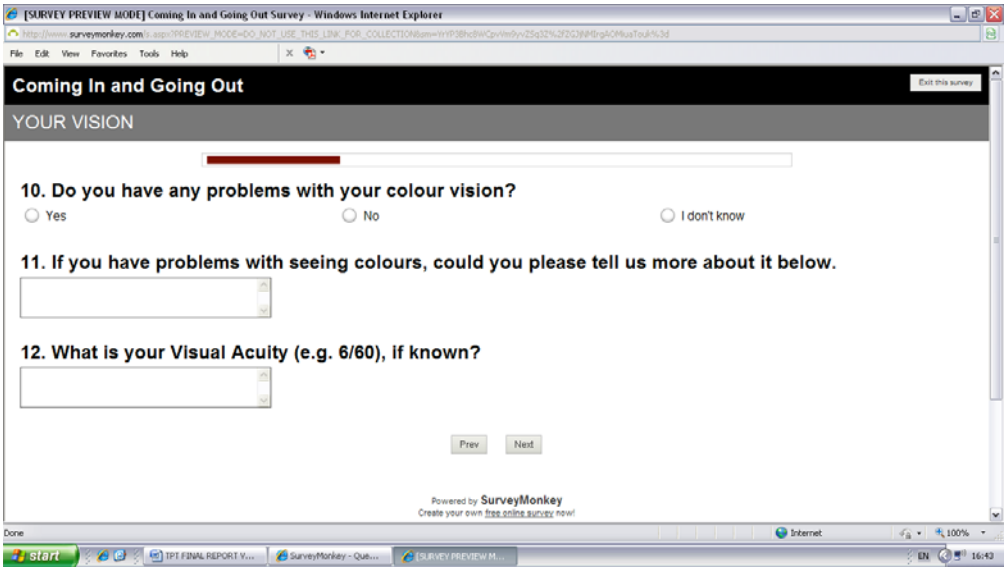
Appendix C
Questionnaire: SurveyMonkey Format

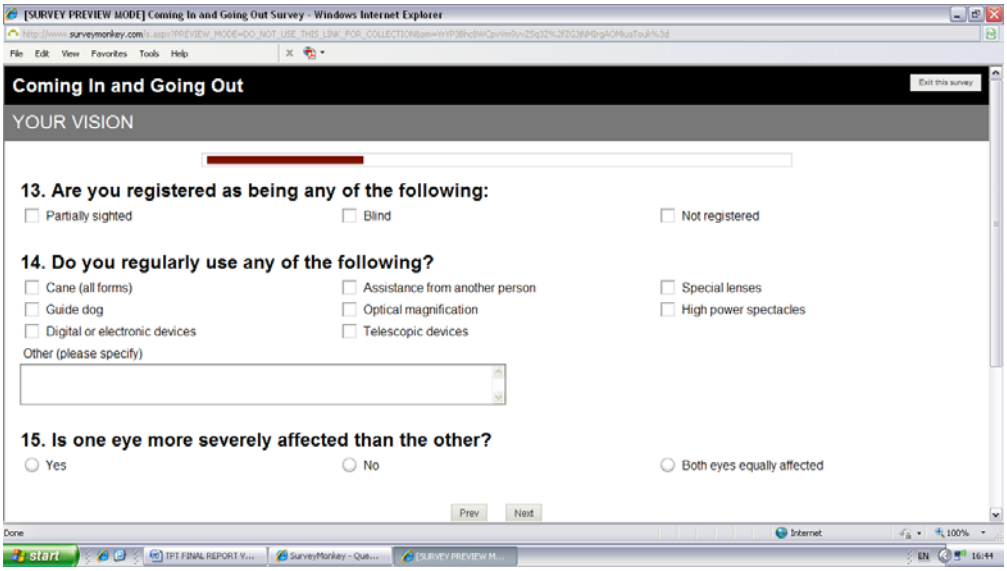


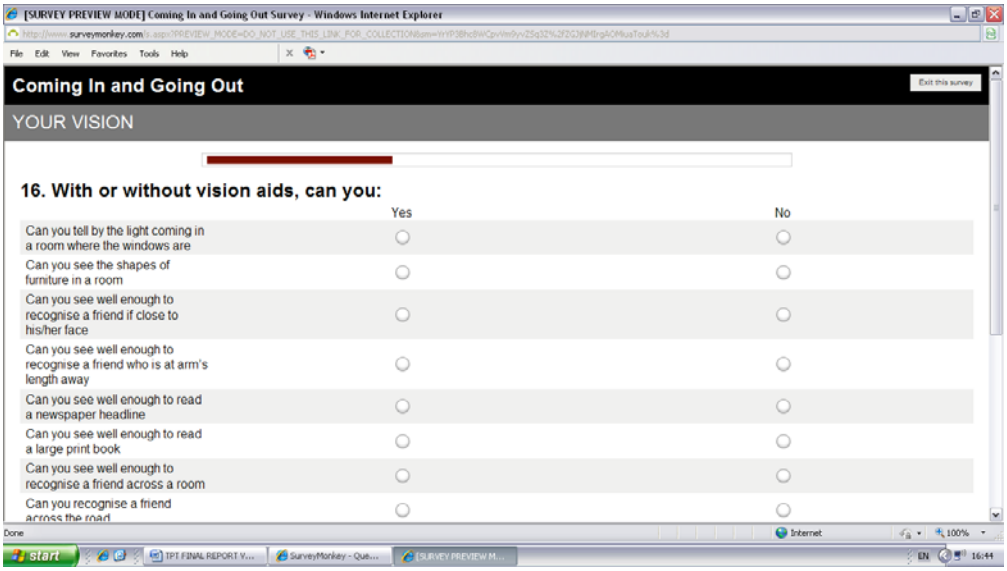


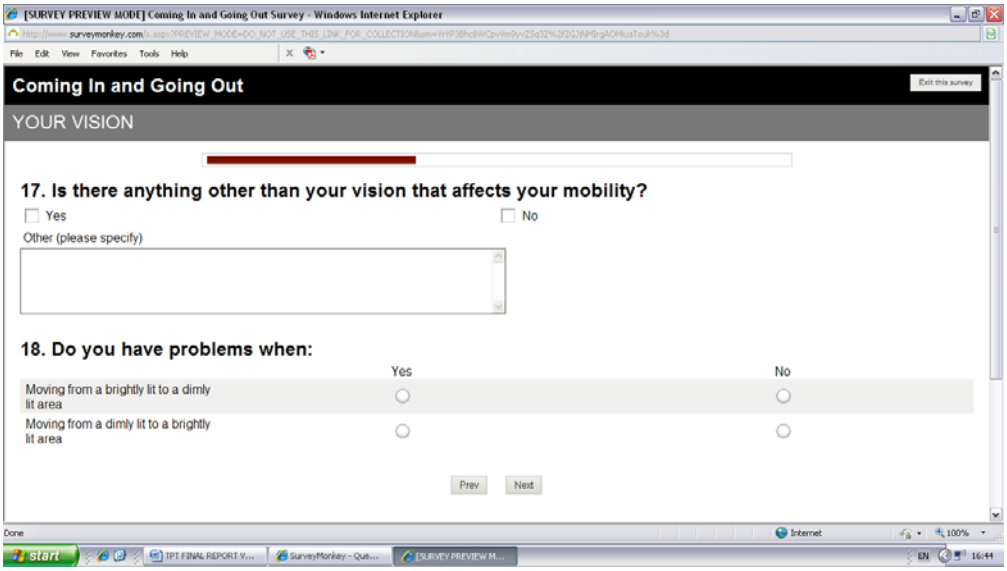

[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
File Edit View Favorites Tools Help
Coming In and Going Out
Exit this survey
ABOUT YOU
Thank you for taking the time to complete our questionnaire. Before we proceed, we'd like to know a little more about you and your vision. All information is treated with complete confidentiality. The first 7 questions ask for your name and contact details. If you do not want to give us this information, please move on to next section.
1. Name:
2. Address:
3. Postcode:
4. Telephone:
5. Email:
Done
Internet
100%
start
TPT FINAL REPORT V...
SurveyMonkey - Que...
[SURVEY PREVIEW M...
EN
16:42

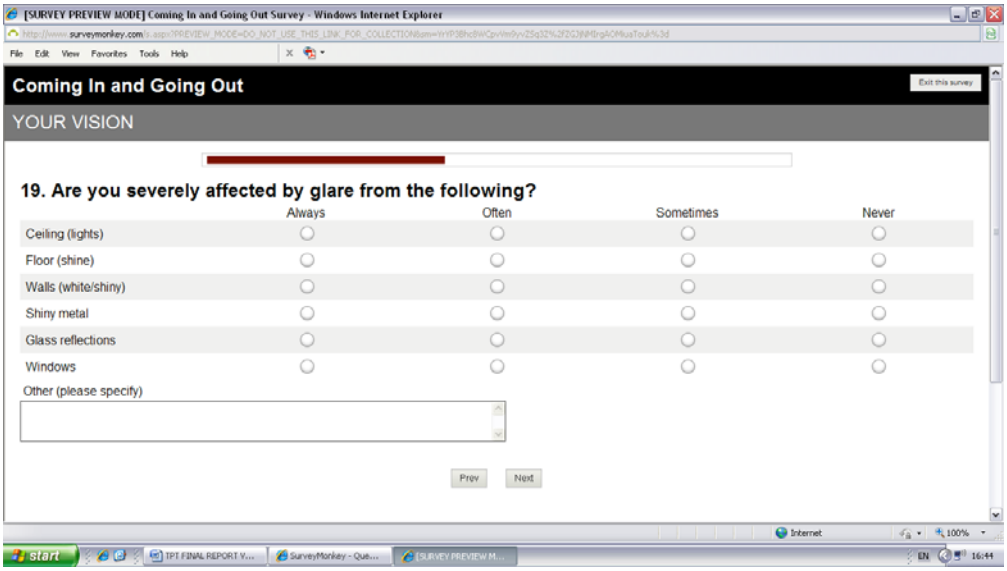

[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
File Edit View Favorites Tools Help
Coming In and Going Out
Exit this survey
YOUR VISION
We'd like to know about your eye condition(s) and your vision.
8. What is your vision loss?
Central vision
Peripheral vision
General vision
I don't know
9. What is the medical name of your eye condition (if known)? You may tick more than one answer.
I do not wish to say
Age-related macular degeneration (AMD)
Cancer related sight loss
Congenital cataracts
Cataracts
Diabetes related eye conditions
Glaucoma
High degree myopia
Nystagmus
Retinal detachment
Retinitis pigmentosa
Other (please specify)
SurveyMonkey - Question Builder - Windows Internet Explorer
Done
Internet
100%
start
TPT FINAL REPORT V...
SurveyMonkey - Que...
[SURVEY PREVIEW M...
EN
16:42

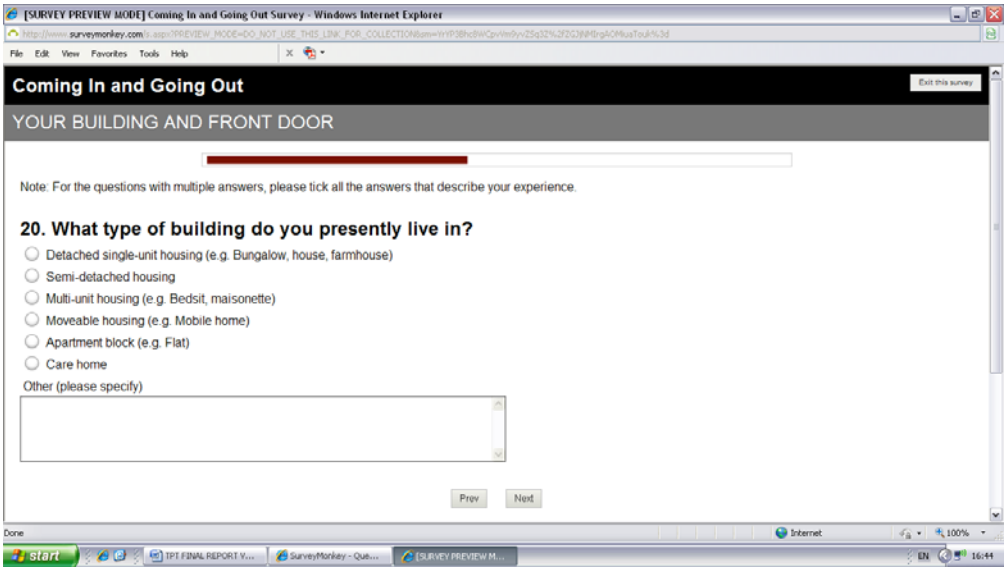

[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
YOUR VISION
10. Do you have any problems with your colour vision?
Yes
No
I don't know
11. If you have problems with seeing colours, could you please tell us more about it below.
12. What is your Visual Acuity (e.g. 6/60), if known?
Prev
Next
Powered by SurveyMonkey
Create your own free online survey now!


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
YOUR VISION
13. Are you registered as being any of the following:
Partially sighted
Blind
Not registered
14. Do you regularly use any of the following?
Cane (all forms)
Assistance from another person
Special lenses
Guide dog
Optical magnification
High power spectacles
Digital or electronic devices
Telescopic devices
Other (please specify)
15. Is one eye more severely affected than the other?
Yes
No
Both eyes equally affected
Prev
Next


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
YOUR VISION
16. With or without vision aids, can you:
Yes
No
Can you tell by the light coming in a room where the windows are
Can you see the shapes of furniture in a room
Can you see well enough to recognise a friend if close to his/her face
Can you see well enough to recognise a friend who is at arm's length away
Can you see well enough to read a newspaper headline
Can you see well enough to read a large print book
Can you see well enough to recognise a friend across a room
Can you recognise a friend across the road
Done
Internet
100%
start
16:44


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
YOUR VISION
17. Is there anything other than your vision that affects your mobility?
Yes
No
Other (please specify)
18. Do you have problems when:
Yes
No
Moving from a brightly lit to a dimly lit area
Moving from a dimly lit to a brightly lit area
Prev
Next
Done
Internet
100%
start
16:44


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
YOUR VISION
19. Are you severely affected by glare from the following?
Always
Often
Sometimes
Never
Ceiling (lights)
Floor (shine)
Walls (white/shiny)
Shiny metal
Glass reflections
Windows
Other (please specify)
Prev
Next


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
YOUR BUILDING AND FRONT DOOR
Note: For the questions with multiple answers, please tick all the answers that describe your experience.
20. What type of building do you presently live in?
Detached single-unit housing (e.g. Bungalow, house, farmhouse)
Semi-detached housing
Multi-unit housing (e.g. Bedsit, maisonette)
Moveable housing (e.g. Mobile home)
Apartment block (e.g. Flat)
Care home
Other (please specify)
Prev
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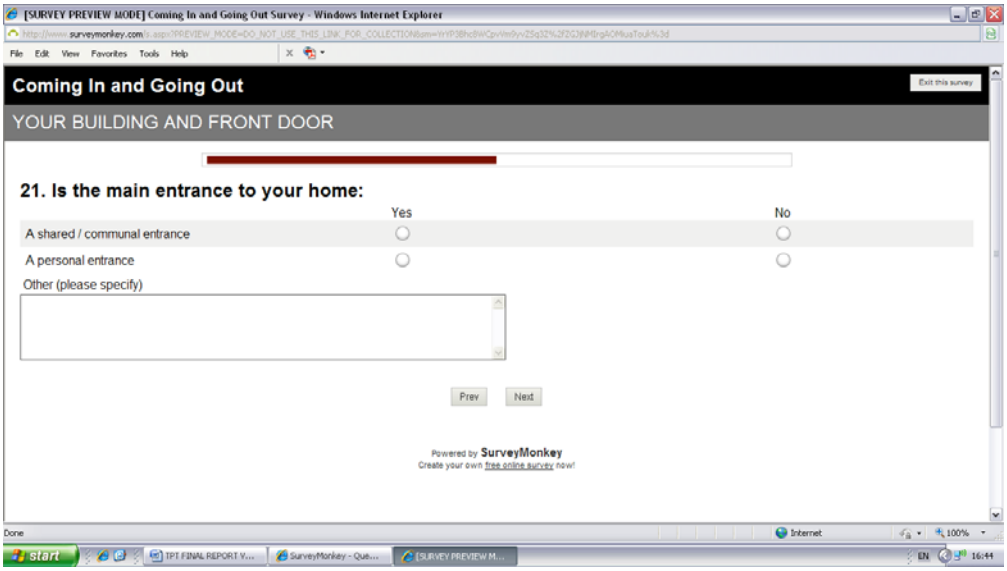
[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
YOUR BUILDING AND FRONT DOOR
21. Is the main entrance to your home:
Yes
No
A shared / communal entrance
A personal entrance
Other (please specify)
Prev
Next
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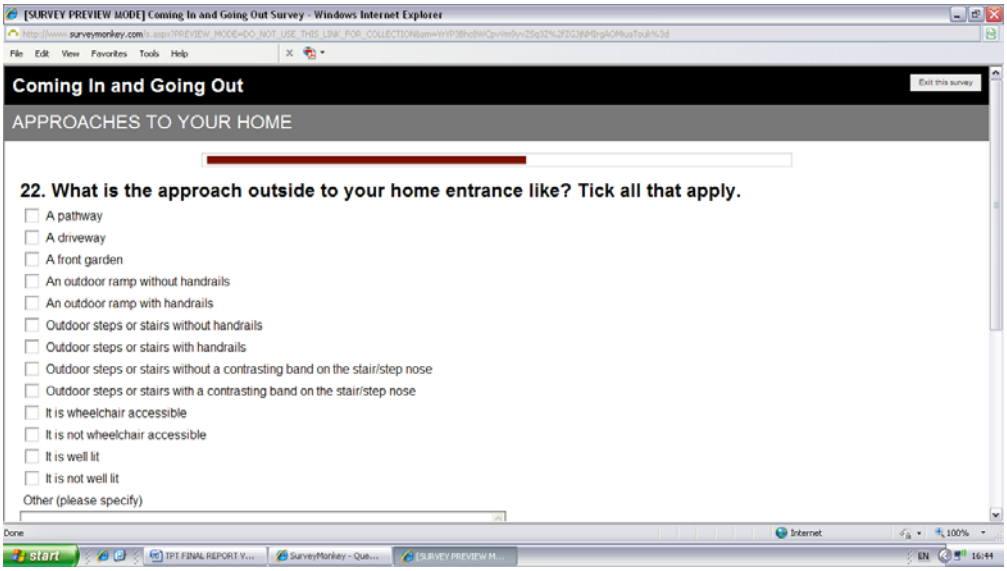
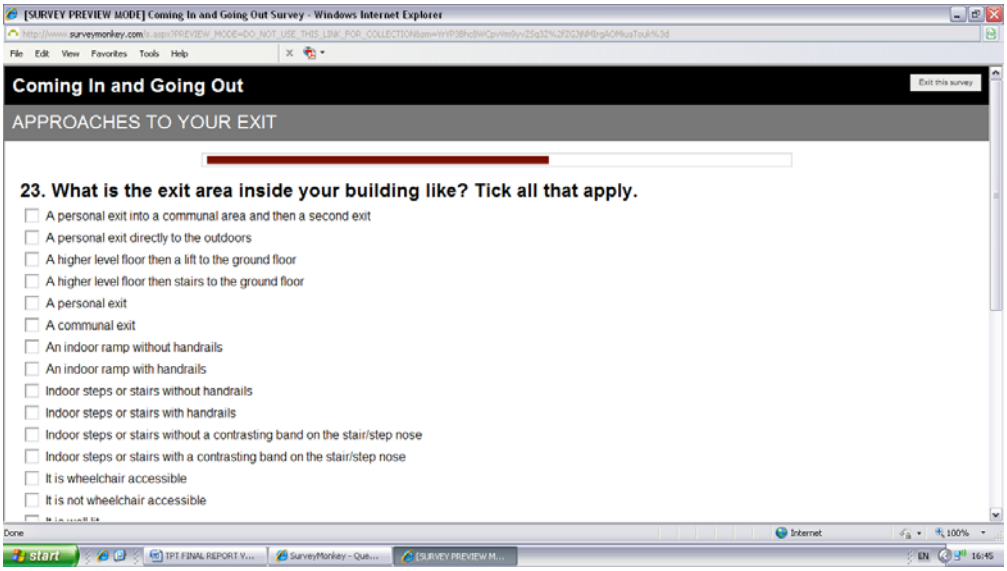
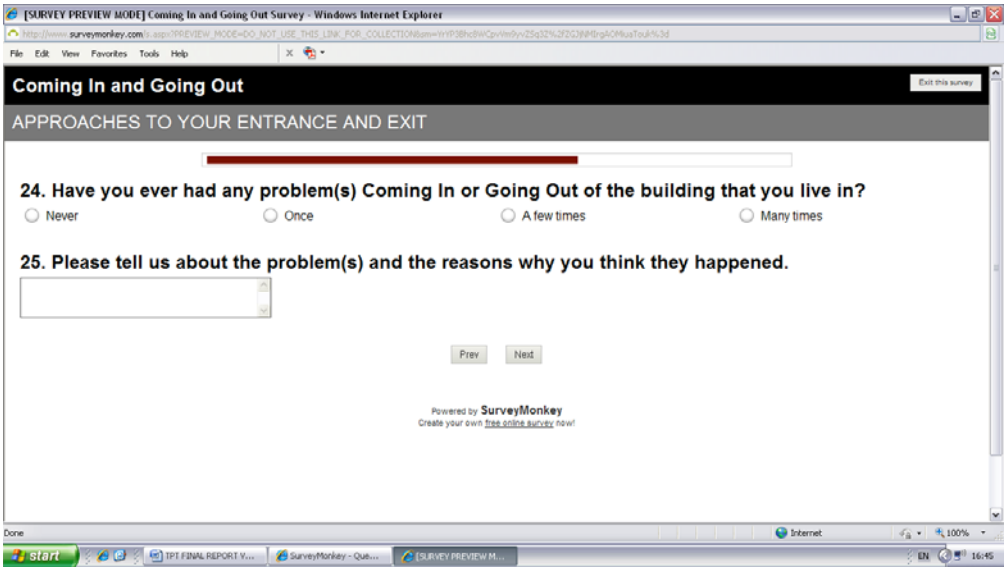

[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
APPROACHES TO YOUR HOME
22. What is the approach outside to your home entrance like? Tick all that apply.
A pathway
A driveway
A front garden
An outdoor ramp without handrails
An outdoor ramp with handrails
Outdoor steps or stairs without handrails
Outdoor steps or stairs with handrails
Outdoor steps or stairs without a contrasting band on the stair/step nose
Outdoor steps or stairs with a contrasting band on the stair/step nose
It is wheelchair accessible
It is not wheelchair accessible
It is well lit
It is not well lit
Other (please specify)


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
APPROACHES TO YOUR EXIT
23. What is the exit area inside your building like? Tick all that apply.
A personal exit into a communal area and then a second exit
A personal exit directly to the outdoors
A higher level floor then a lift to the ground floor
A higher level floor then stairs to the ground floor
A personal exit
A communal exit
An indoor ramp without handrails
An indoor ramp with handrails
Indoor steps or stairs without handrails
Indoor steps or stairs with handrails
Indoor steps or stairs without a contrasting band on the stair/step nose
Indoor steps or stairs with a contrasting band on the stair/step nose
It is wheelchair accessible
It is not wheelchair accessible


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
APPROACHES TO YOUR ENTRANCE AND EXIT
24. Have you ever had any problem(s) Coming In or Going Out of the building that you live in?
Never
Once
A few times
Many times
25. Please tell us about the problem(s) and the reasons why you think they happened.
Prev
Next
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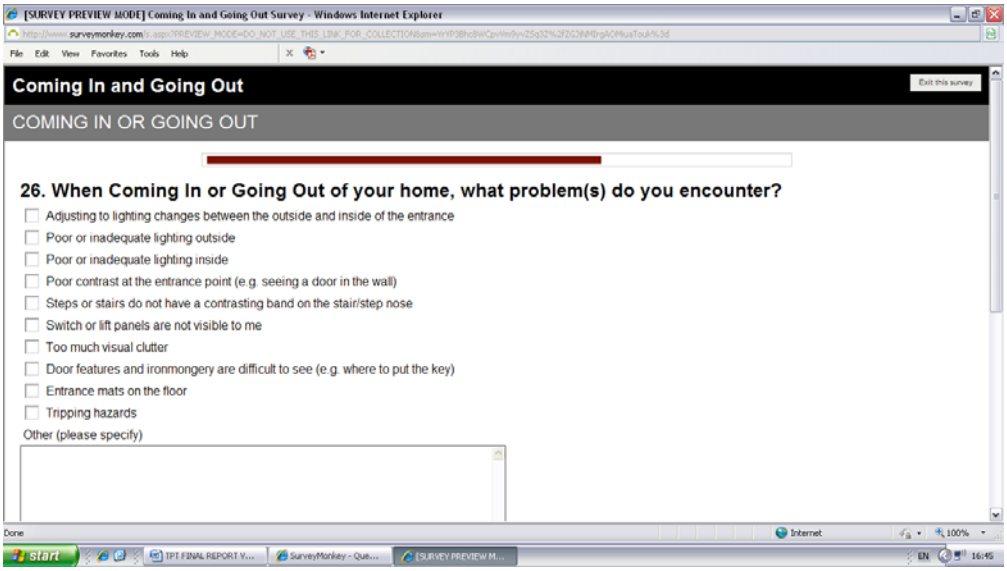
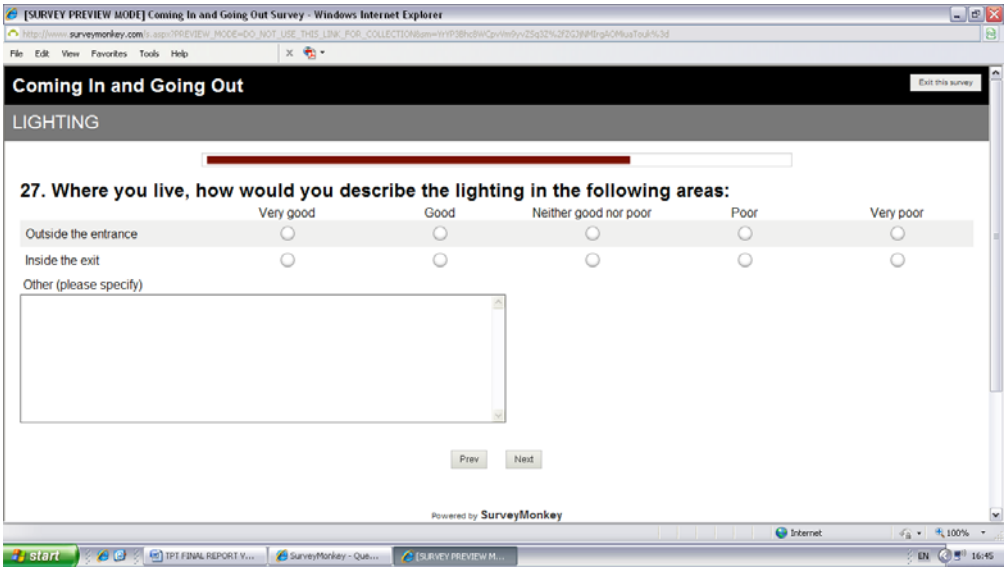

[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
COMING IN OR GOING OUT
26. When Coming In or Going Out of your home, what problem(s) do you encounter?
Adjusting to lighting changes between the outside and inside of the entrance
Poor or inadequate lighting outside
Poor or inadequate lighting inside
Poor contrast at the entrance point (e.g. seeing a door in the wall)
Steps or stairs do not have a contrasting band on the stair/step nose
Switch or lift panels are not visible to me
Too much visual clutter
Door features and ironmongery are difficult to see (e.g. where to put the key)
Entrance mats on the floor
Tripping hazards
Other (please specify)


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
LIGHTING
27. Where you live, how would you describe the lighting in the following areas:
Very good
Good
Neither good nor poor
Poor
Very poor
Outside the entrance
Inside the exit
Other (please specify)
Prev
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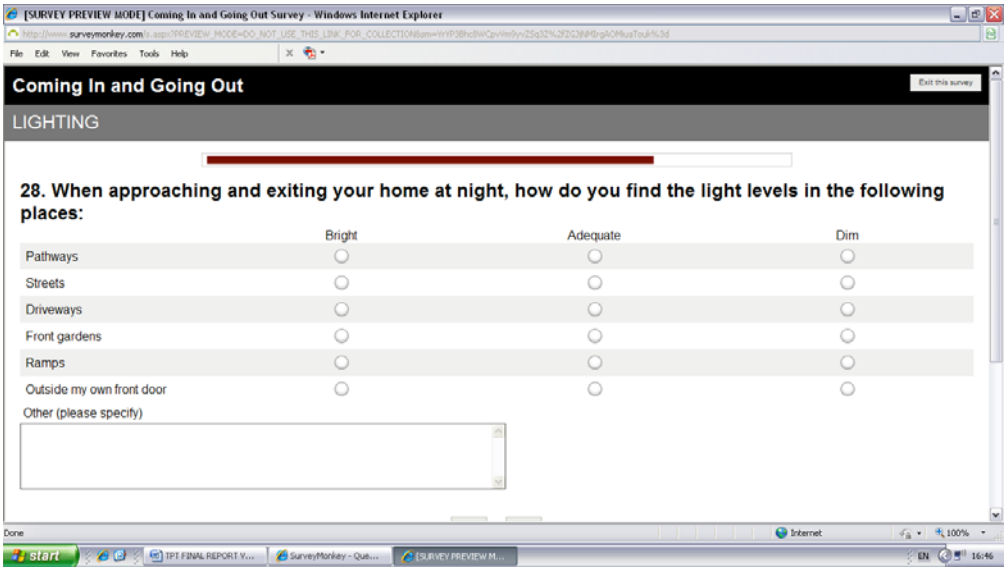
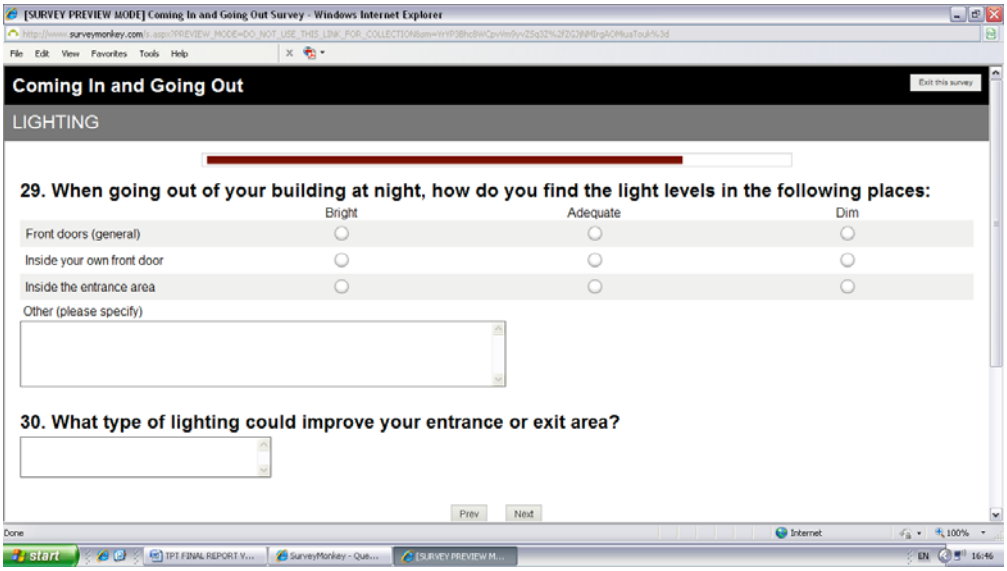
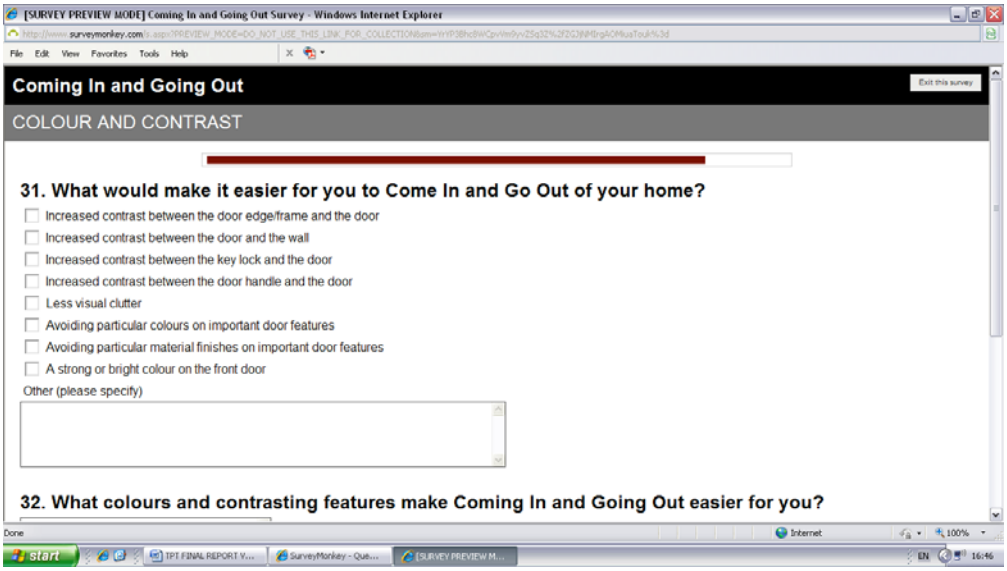
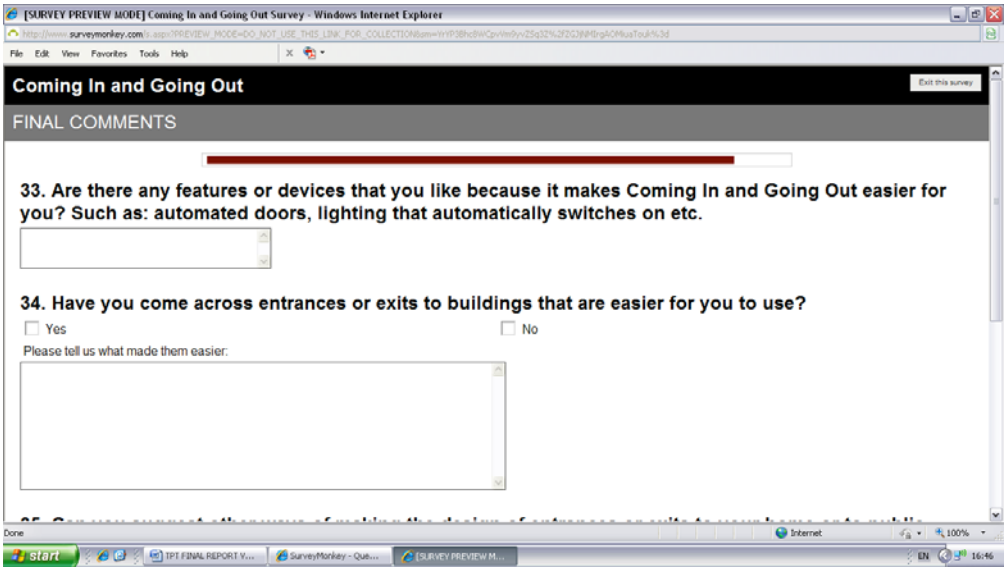
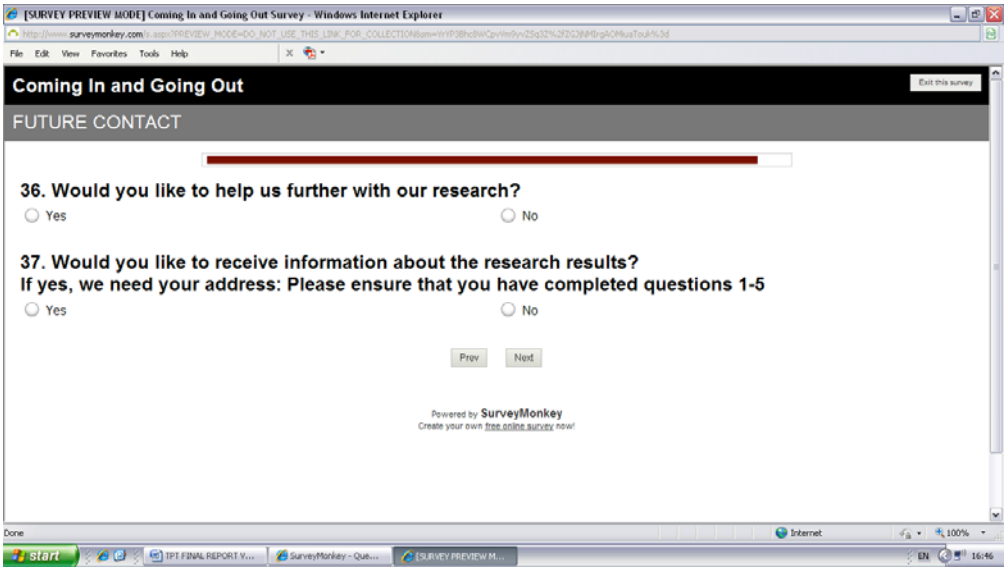

[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
LIGHTING
28. When approaching and exiting your home at night, how do you find the light levels in the following places:
Bright
Adequate
Dim
Pathways
Streets
Driveways
Front gardens
Ramps
Outside my own front door
Other (please specify)


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
LIGHTING
29. When going out of your building at night, how do you find the light levels in the following places:
Bright
Adequate
Dim
Front doors (general)
Inside your own front door
Inside the entrance area
Other (please specify)
30. What type of lighting could improve your entrance or exit area?
Prev
Next


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
COLOUR AND CONTRAST
31. What would make it easier for you to Come In and Go Out of your home?
Increased contrast between the door edge/frame and the door
Increased contrast between the door and the wall
Increased contrast between the key lock and the door
Increased contrast between the door handle and the door
Less visual clutter
Avoiding particular colours on important door features
Avoiding particular material finishes on important door features
A strong or bright colour on the front door
Other (please specify)
32. What colours and contrasting features make Coming In and Going Out easier for you?


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
Coming In and Going Out
Exit this survey
FINAL COMMENTS
33. Are there any features or devices that you like because it makes Coming In and Going Out easier for you? Such as: automated doors, lighting that automatically switches on etc.
34. Have you come across entrances or exits to buildings that are easier for you to use?
Yes
No
Please tell us what made them easier:


[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
File Edit View Favorites Tools Help
Coming In and Going Out
Exit this survey
FUTURE CONTACT
36. Would you like to help us further with our research?
Yes
No
37. Would you like to receive information about the research results?
If yes, we need your address: Please ensure that you have completed questions 1-5
Yes
No
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Powered by SurveyMonkey
Create your own free online survey now!
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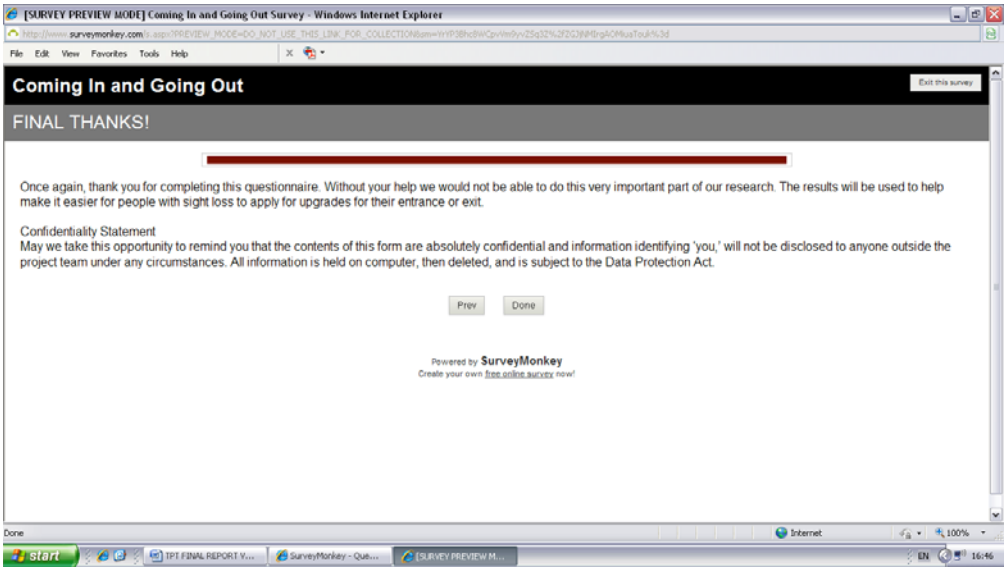
[SURVEY PREVIEW MODE] Coming In and Going Out Survey - Windows Internet Explorer
File Edit View Favorites Tools Help
Coming In and Going Out
Exit this survey
FINAL THANKS!
Once again, thank you for completing this questionnaire. Without your help we would not be able to do this very important part of our research. The results will be used to help make it easier for people with sight loss to apply for upgrades for their entrance or exit.
Confidentiality Statement
May we take this opportunity to remind you that the contents of this form are absolutely confidential and information identifying 'you,' will not be disclosed to anyone outside the project team under any circumstances. All information is held on computer, then deleted, and is subject to the Data Protection Act.
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Create your own free online survey now!
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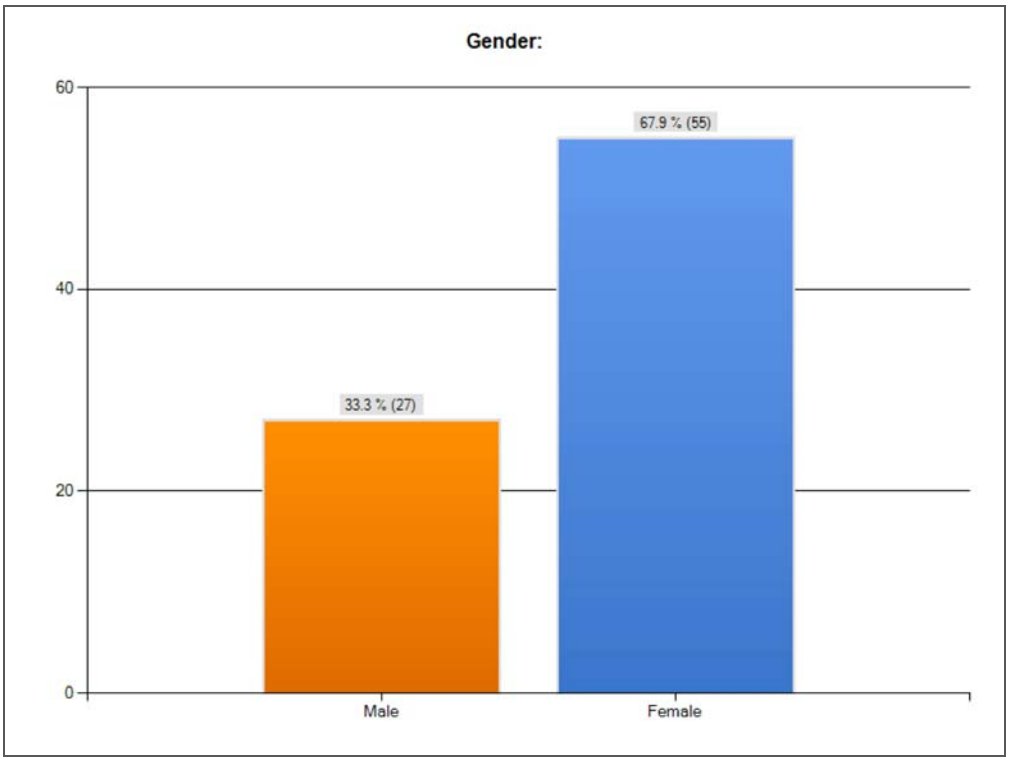
Appendix D
Questionnaire: Additional Bar Charts

Respondents' profile & vision

GENDER



- 67% of respondents were female
- 33% were male

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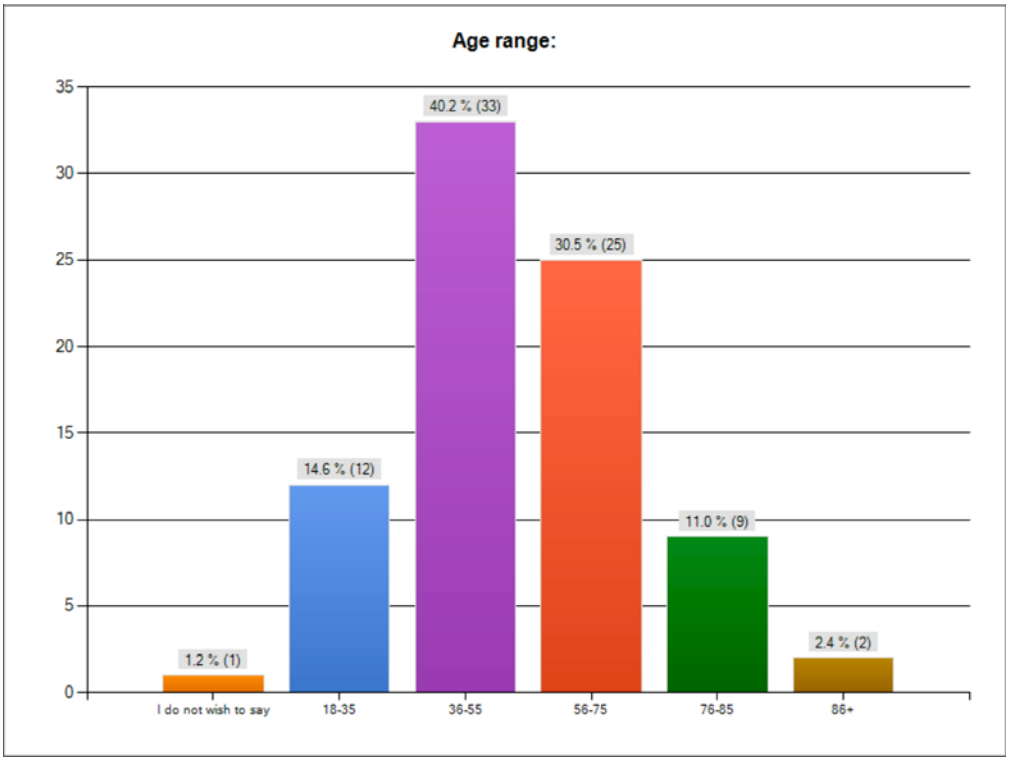
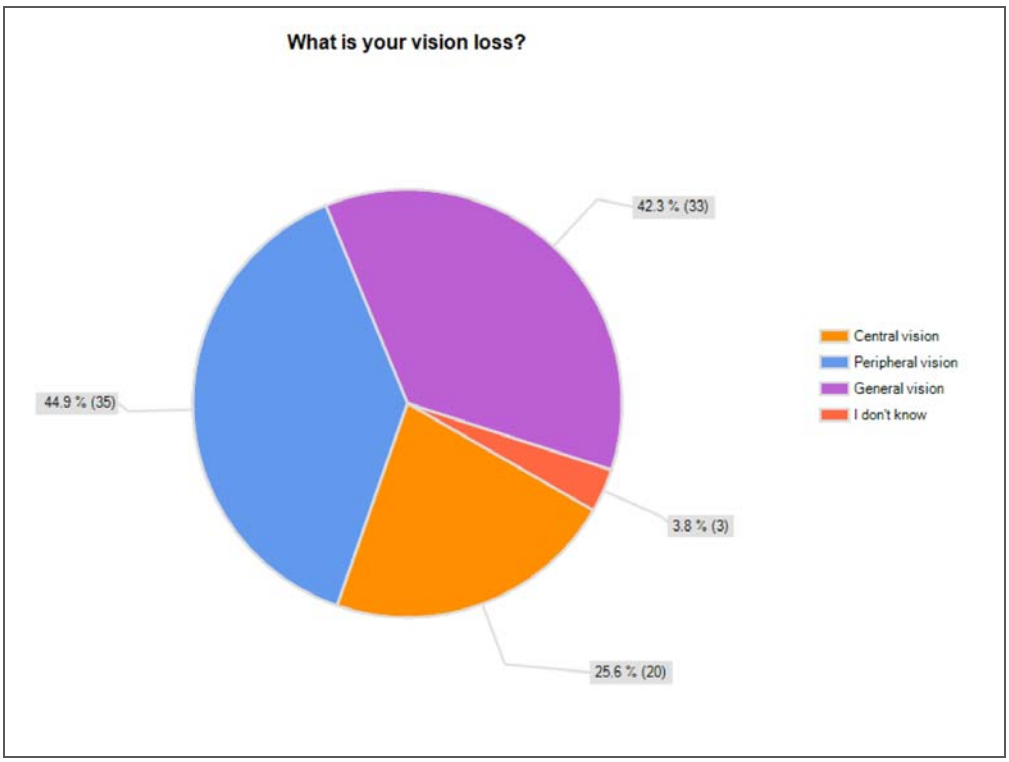
AGE RANGE



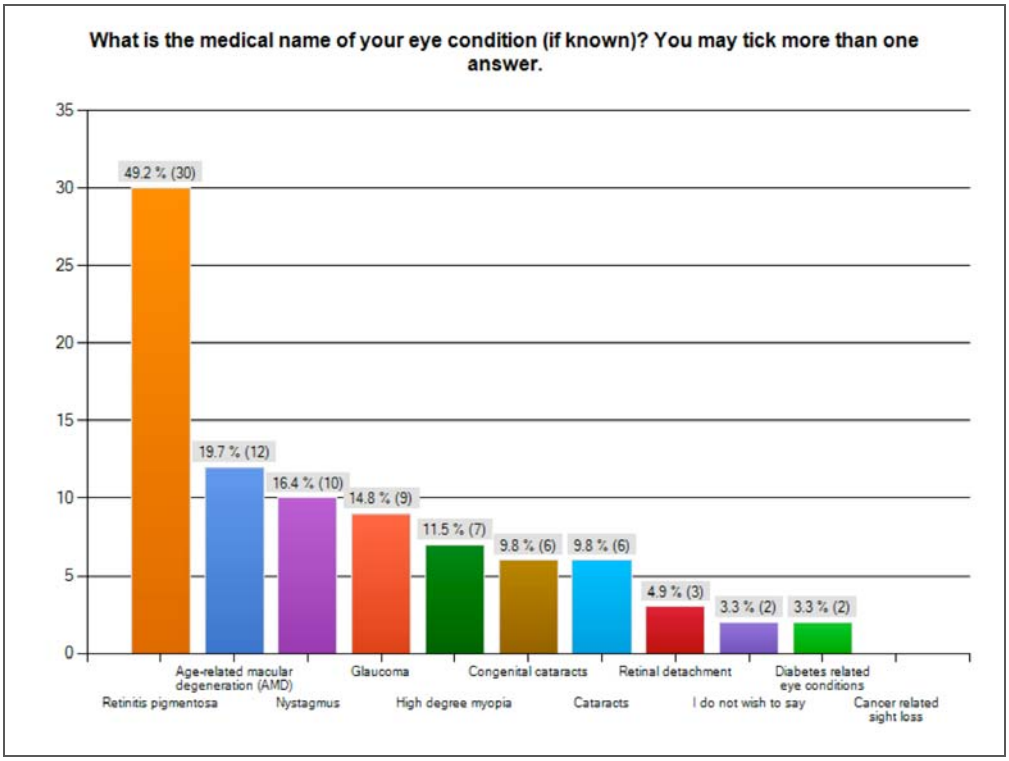
- 40.2% were 36 – 55 years old
- 30.5% were 56 – 75 years old

VISION LOSS



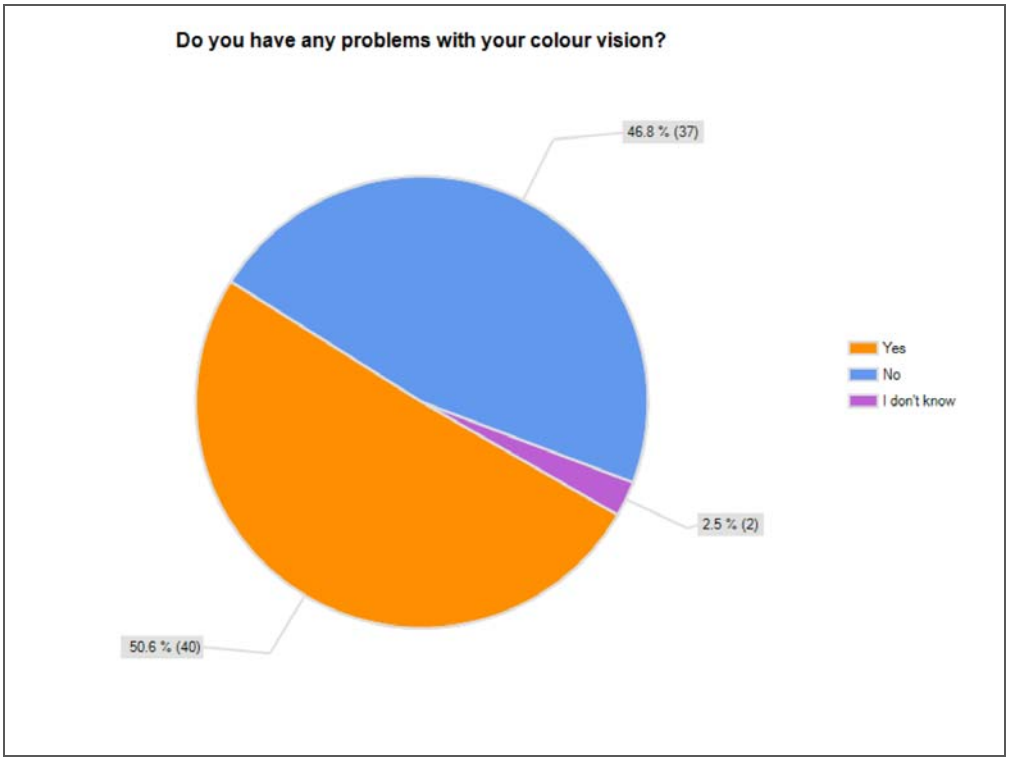
- Central Vision loss: 25.6%
- Peripheral loss: 44.9%

IMPAIRMENT



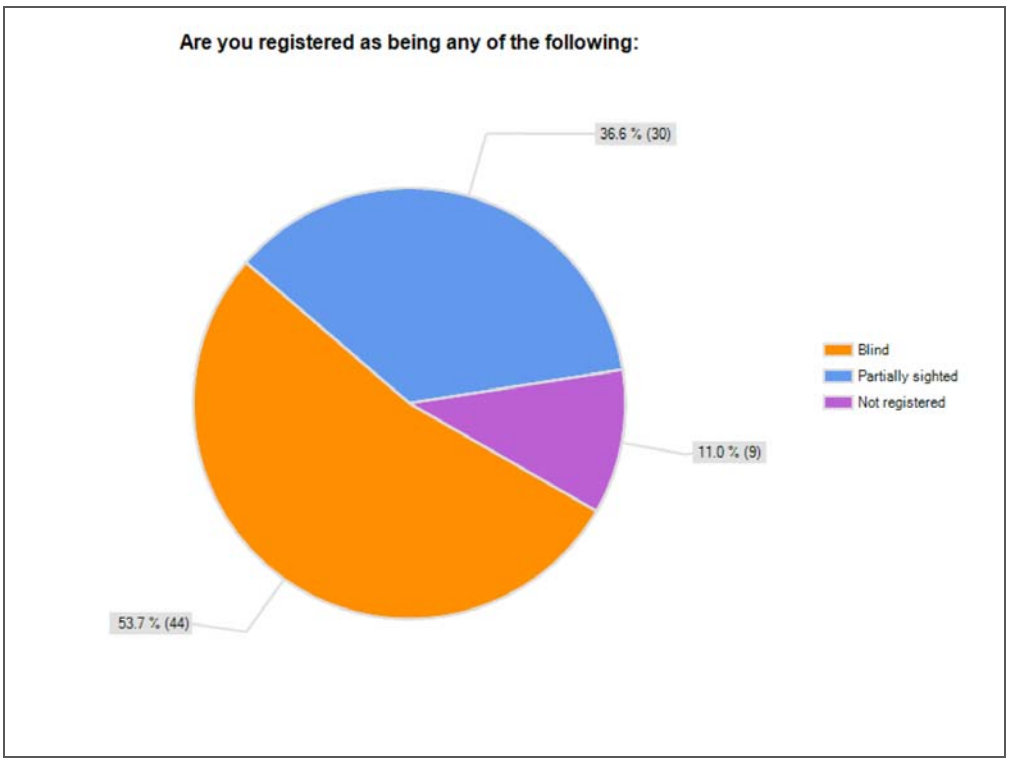
- Retinitis Pigmentosa and AMD: 68.9%
- Many respondents had more than one type

COLOUR VISION



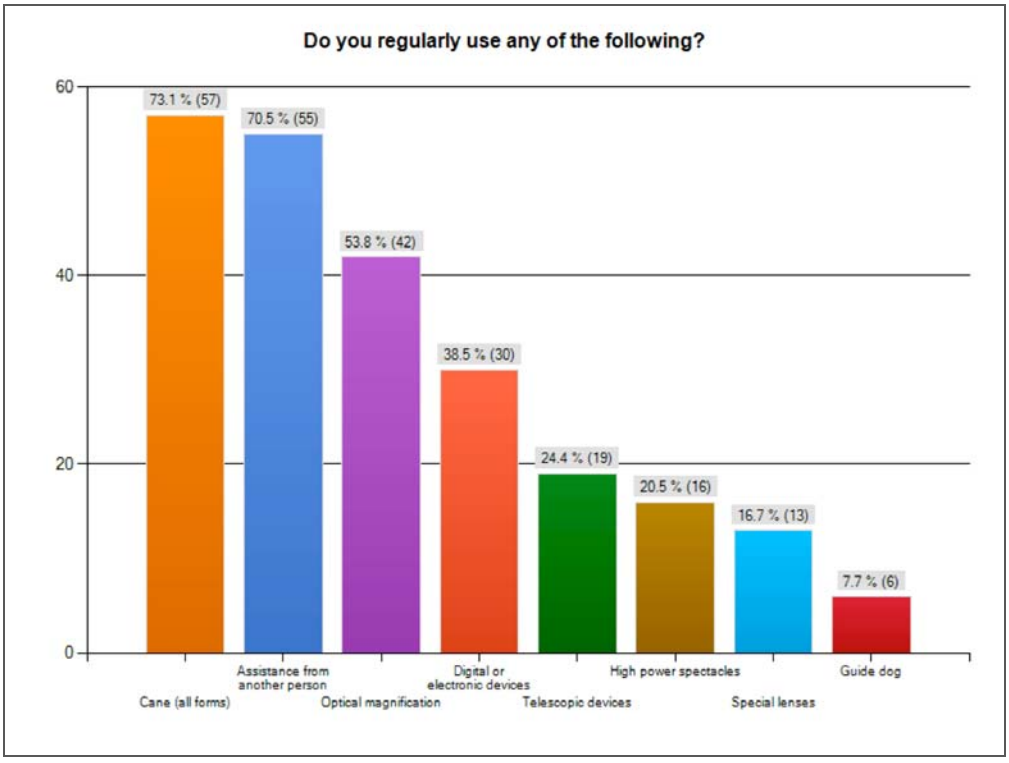
- 50.6% have colour vision problems

VISION REGISTRATION



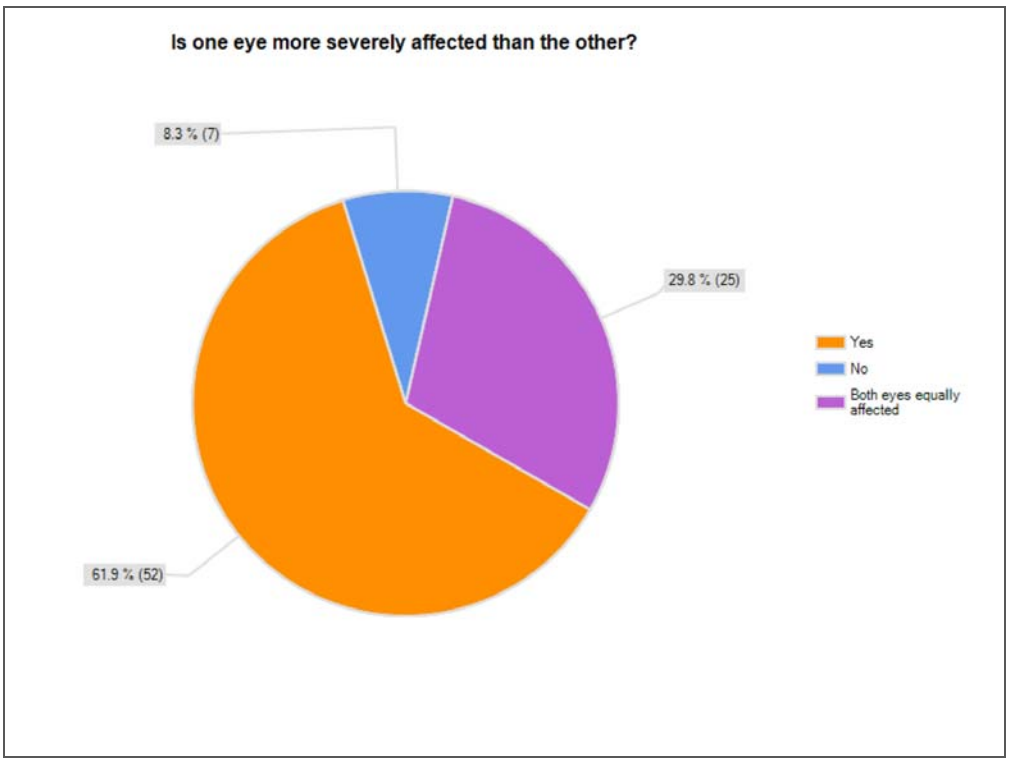
- 53.7% registered blind
- 36.6% registered partially sighted

VISION AIDS



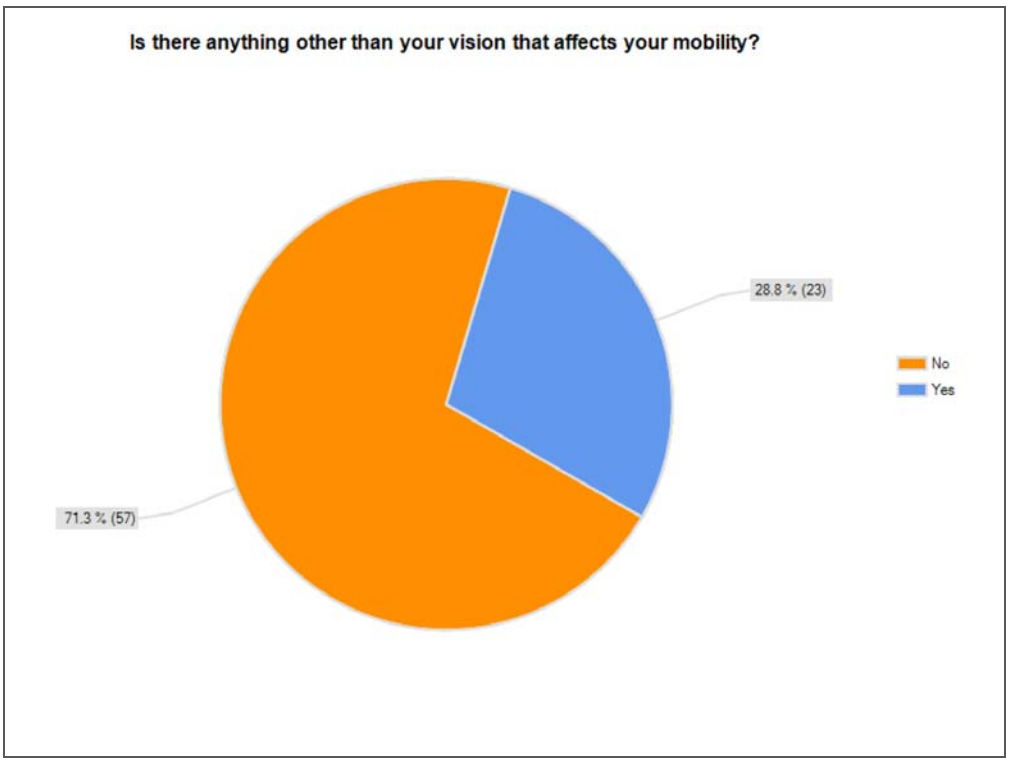
- All forms of cane: 73.1%
- Assistance from another person: 70.5%

EYE DIFFERENCES



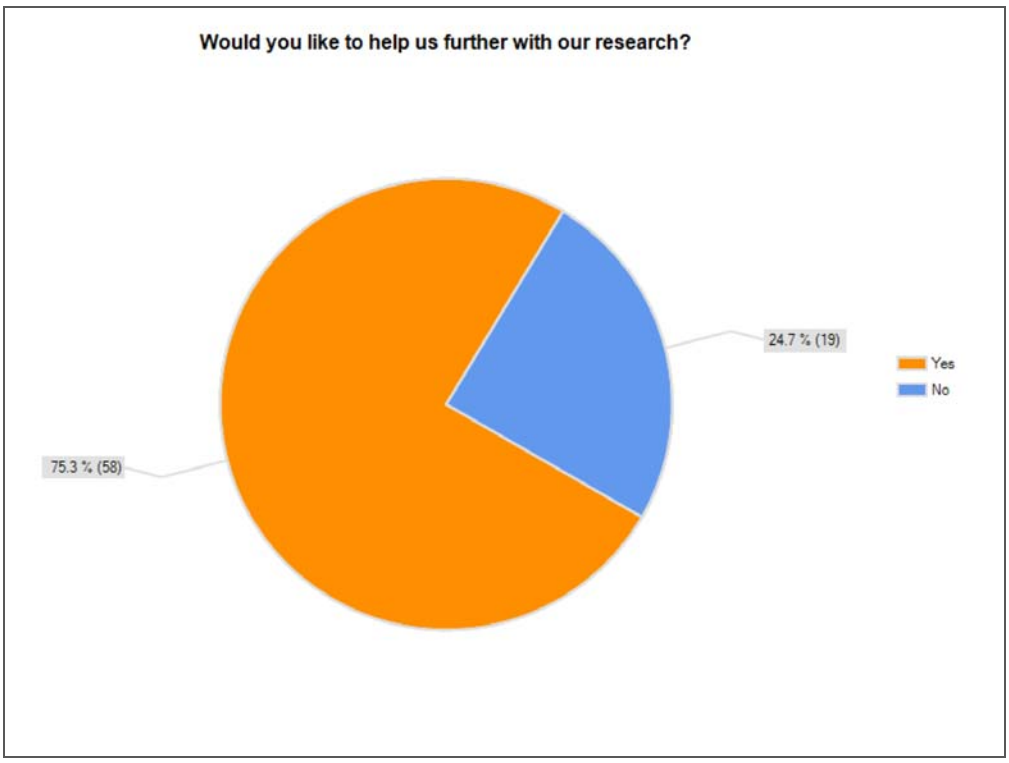
- One eye is affected more than the other: 61.9%

MOBILITY



- 28.8% have another mobility disability

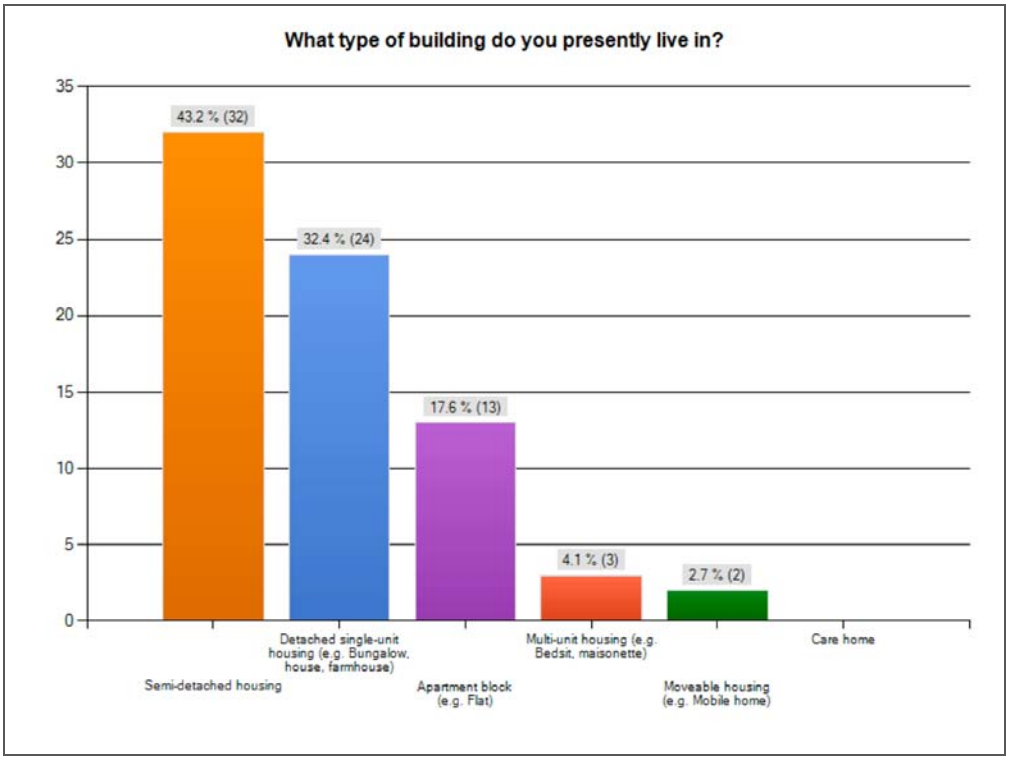
FURTHER HELP



- 75.3% have volunteered to help us further

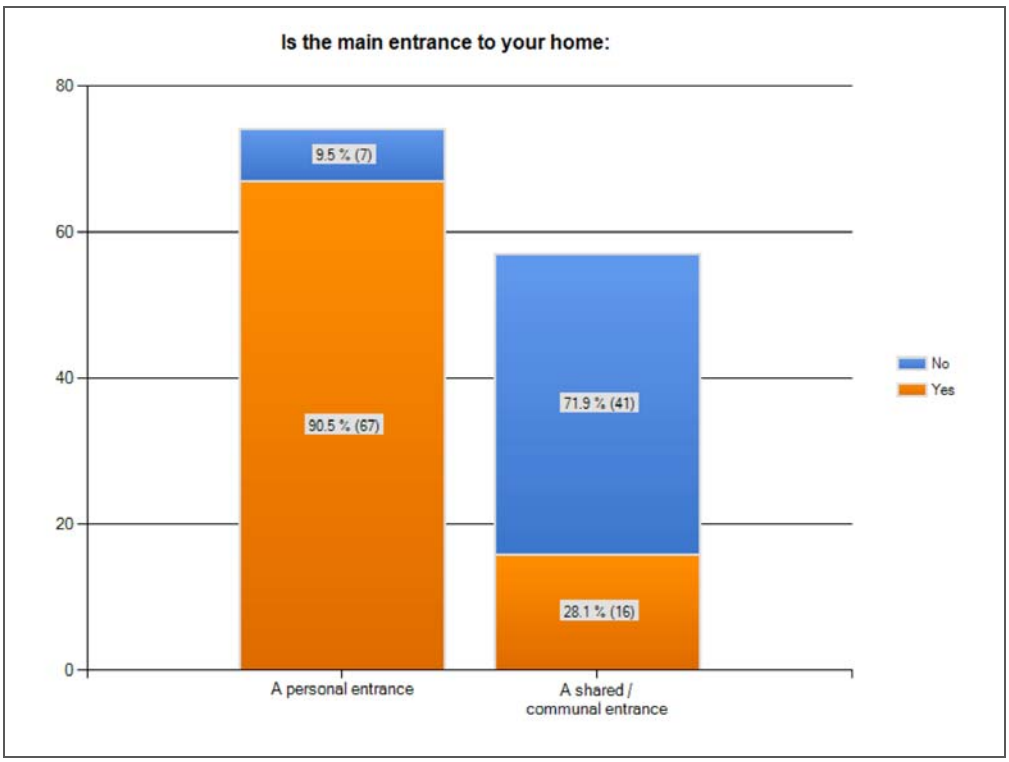
Respondents' homes

TYPE OF BUILDING



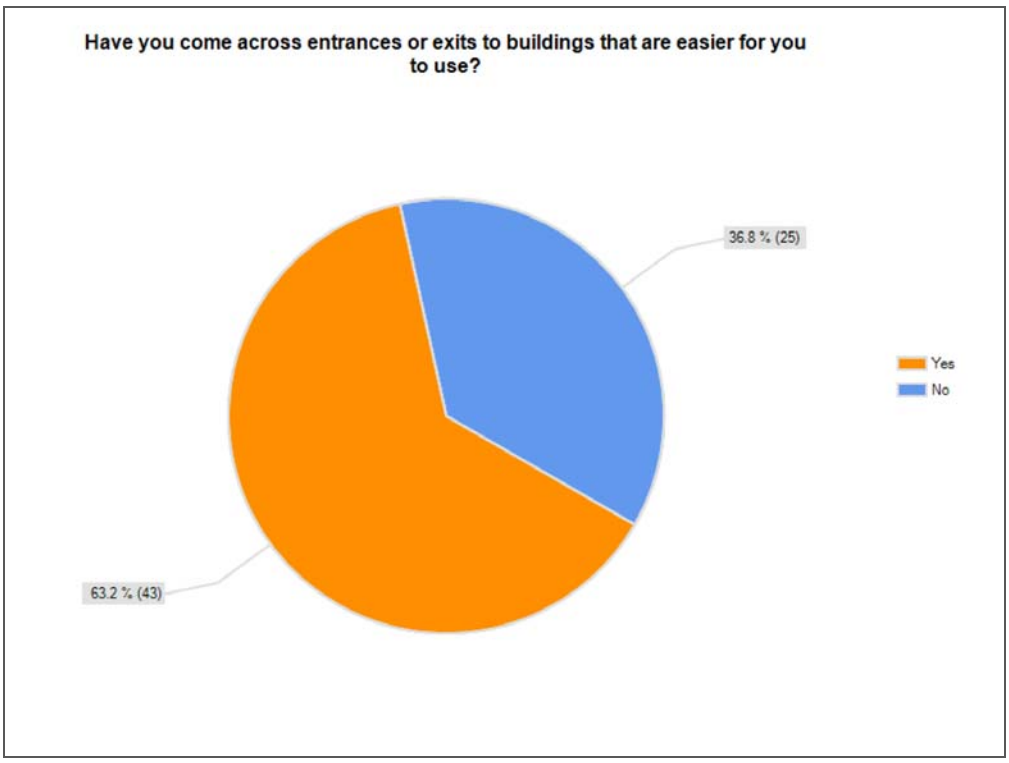
- 43.2% live in semi-detached housing
- 17.6% are living in flats

MAIN ENTRANCE



- 90.5% have a personal main entrance
- 28.1% have a communal/shared entrance

ACCESSIBLE ENTRANCES AND EXITS



- 63.2% of respondents have encountered entrances or exits that are accessible

Appendix E
Local authorities: Feedback on the Checklist

Qualitative comments

The following comments were received by the Adaptations Monitoring Officer at the Royal Borough of Kensington and Chelsea:

1) Occupational therapists:

> *"Yes, I did an additional external light above the front door for a VI client a while back, also having the external handrail painted in hi-visibility colours. These were done as minor adaptations to help him find his way back from the shops."*

2) Rehabilitation officers who works with people with visual impairments, based in the sensory impairment team:

> *"Sensory Services often write letters to housing associations and TMO and do joint site visits, advising as to appropriate lighting. We also address issues such as getting the edge of steps painted to make them stand out. People who are visually impaired often struggle with depth perception and having the edge of steps and stairs highlighted can assist with this difficulty. We work with our OT colleagues to install hand/ grab rails where appropriate. OT's will put in contrasting coloured hand rails or grab rails where necessary to ensure that people who are visually impaired are able to maximise their remaining functional vision.*
>
> *We advise on having good colour contrast for doors and the door furniture such the numbers and handles etc. We have also liaised with the relevant organisations to get the height of trees reduced where they have been cutting out natural light. We also report uneven or broken paving/ paths where they become a trip hazard and work with the relevant agencies to help them to understand the issues.*
>
> *RBKC has two qualified Rehabilitation Officers who can offer skills training with regards to managing revolving doors, stairs, locating the keyhole and other locks etc."*

3) Other rehab officers from the sensory team:

"The only other small point regarding enhancing functional vision I would add is with doorbells e.g. a white doorbell unit placed against a white door frame or surround is very difficult to see. I would also mention the importance of placement of doorbells, handles, etc and how important predictability is for people who are blind or visually impaired e.g. being able to find a doorbell or door handle in the place where you would normally search for it."

4) Adaptations Monitoring Officer, Occupational Therapy:

"Just one more point: about design regarding lifts. My personal experience is that each one (like buses these days) has been designed to be quite different from all the rest and if you are using it for the first time it is usually totally unpredictable. Even if lighting is good in the lift (and it often is not) finding the lift buttons usually means searching around for the panel. Information on floors may be inside the lift – or it may be somewhere outside the lift - and you don't know this until you are already in and the doors have closed! Button/control panels are often placed low to make it accessible to wheelchair users but this also makes it difficult to see if you have to bend down to get close or to see without reflected light or glare. I offer this to reinforce the importance of predictability at the design stage – which, if well done, can obviate the need for adaptations or enhancement later on!"

Appendix F
Example of Immediate Impact from the Advisory Panel meeting

The following excerpt is from an email sent by Steve Nottage, Environmental Health (Housing) Manager, London Borough of Merton, 6th June 2012.

Mr Nottage attended the advisory panel meeting at Kingston University on 18th April 2012 for the Thomas Pocklington Trust research project and we thank him for his report:

> *Yes, the change came about later the same day as our meeting at Kingston University! I was discussing with the Occupational Therapy Managers that afternoon and amongst the cases were a couple which involved clients with visual impairments. We discussed the clients and their issues with accessing their homes and the amenities within it and I was able to confirm we can grant-assist a much wider spectrum of works than would otherwise have been the case before our meeting earlier. The discussion concerning lighting when entering and exiting buildings was especially useful in this regard, My colleagues had often considered 'the more light the better' for clients with a visual impairment, but that was clearly wrong given the experience of folks at our meeting in the morning. I can't go into specifics of cases, but we are now better appraised and more aware of the needs of residents with visual impairment when considering Disabled Facilities Grants (DGFs). Local authorities were making decisions on the basis of saving money rather than keeping to the letter of the law! I look forward to seeing the outcomes of the research and will continue to work in the field of DFGs with a greater appreciation of the needs and experience of folks in the low vision community.*
>
> Steve Nottage

Appendix G

Audit Tool Kit - Areas to be checked for upgrading for accessibility for visually impaired residents.

Approach to home

Approach from the street	
Street lighting	
Visibility	
Landmarks	
Entrance to property	
Paving	
Steps	
Path/garden area	
Handrails	
Ramp	
Materials	
Lighting	
Contrast	

Entrance

Light at entrance	
Automatic sensor lighting	
Wheelchair accessible	
Step	
Handrail	
Threshold (outside to inside)	
Rendering/brickwork/façade	
Door	
Door number	
Door furniture	
Doorframe	
Contrast of door with wall	
Light on door/step	
Step nosing	
Step contrast with wall and floor	
Edges for stick to locate boundaries	

Tactile marking on door/wall	
Doorbell/knocker/Voice entry System	
Buzzer/vibration call system	

Threshold inside the entrance

Light switches/automatic sensor lighting	
Transitional lighting	
Lighting	
Flooring/skirting	
Walls	
Handrail	
Steps/stairs	
Contrasting edges/walls/flooring	
Personal door	
Visibility of personal door	
Security system	
Door number	
Door furniture	

Doorframe	
Contrast of door with wall	
Light on personal door	

Exit

Light at exit	
Automatic sensor lighting	
Step	
Handrail	
Threshold (inside to outside)	
Contrast of door with wall	
Door	
Door furniture	
Doorframe	
Light on door/step	
Step nosing	
Step contrast with wall	
Edges for stick to locate boundaries	
Tactile marking on door/wall	

Door Exit System	
Ramp	