

# Improving lighting, improving lives

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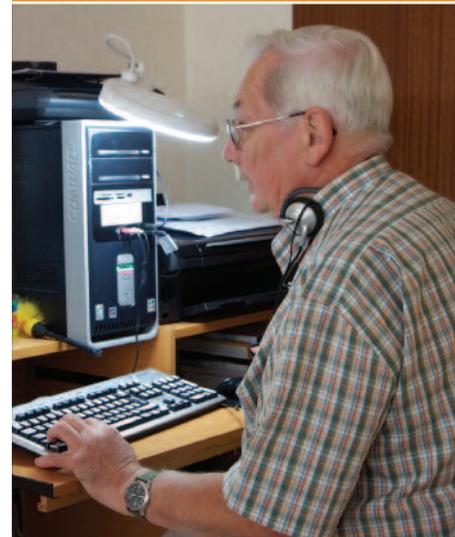
Building on previous research into the impact of better lighting on the lives of people with sight loss, Thomas Pocklington Trust reports here on two subsequent studies of lighting. One study gathered the personal experiences of older people living with new lighting adaptations. The other set out to explore whether such adaptations could save taxpayers money by reducing the number of falls. Taken together, the key findings of these studies represent two sides of the lighting story – strong qualitative evidence that improving lighting transforms lives and a clear need for better data to confirm that lighting adaptations are cost effective.

## Study 1: An evaluation of lighting adaptations

### Background

In this project, the lighting needs of nine visually impaired people were assessed and adaptations were installed in their homes. Some three to four months later (July and August 2011) the participants were interviewed about the impact of the adaptations.

All nine reported that daily tasks were easier to carry out, but even more striking was the fact that five of them now said they could carry out tasks that they had previously been unable to do. From a practical point of view, life became easier – but emotionally the new lighting also made a difference. Feelings of self-worth improved as people responded to the brighter, cleaner appearance of their homes and the improved mobility and independence the new lighting gave them. The reassurance gained from having old wiring and fittings checked for safety also boosted people's sense of well-being and security.



## Key Findings from Study 1

**Daily tasks became easier:** All nine participants reported being able to do basic daily tasks more easily - reading, choosing clothes, checking the contents of the freezer, finding things, preparing and cooking food.

- “The lighting in the kitchen is fabulous. It lights up the cupboard, the fridge – there are now no dark corners. I can find the can opener.”
- “The increased wattage of the light in the standard lamp has made it easier for me to read” ... “the strip lights in both wardrobes have made a big difference when I’m choosing what to wear”.
- “There is now more light in the kitchen – there’s more light for cooking and I can see the kettle better on the worktop.”
- “I can find a plug much easier – it’s given me confidence.”

**The undo-able became do-able:** As a result of the lighting changes, five respondents were now able to do things that previously they had not found possible: reading, finding food on a plate, recognising themselves in the mirror, putting in eye drops, negotiating stairs safely, seeing when a pan of water was boiling

- “It allows me to read now – previously I couldn’t read unless there was bright sunlight.”
- “I can now recognise who is in the mirror.”
- “The mirror with the lighting surround means that I can now see to put my face on! I can see to put in eye drops and eye ointment at night.”
- “It has given me more light in the living room – I can just about read a newspaper.”
- “I can now have a wet shave in the bathroom – previously I shaved by the window in the bedroom.”
- “The big difference is that I can now see what is in the freezer – it illuminates the contents.”
- “Previously I couldn’t tell what was in the saucepan. I couldn’t tell when a pan was boiling. Now I can, because the new light shines over the cooker and has made it much brighter.”



*“It allows me to read now.”*

**People felt safer:** Five participants referred to better safety in their home. Potentially hazardous areas such as stairs, steps or the bathroom were better lit and old wiring was checked and replaced where necessary.

- "It is easier to see a pot on the stove and I can see the handle – so as not to knock it over. I can make a sandwich without cutting my fingers."
- "Steve (the engineer) alerted me to the need to replace some of the wiring which was burnt away. He spotted problems I wasn't aware of. It's given me peace of mind."
- "It is light over the stairs. I can now see the steps."
- "An energy-saving bulb with a plastic shade in the bathroom was replaced with a 'waterproof' central light."
- "Steve told me that the wires in the bathroom ceiling had hardened and he recommended some new wiring in the loft. I know it's now safer than before."

**Moving around the home became easier:** Four people reported that the new lighting made it easier to navigate and orientate themselves in their homes.

- "It was dead dark in here (front room). It is now easier to walk around."
- "There is now a better light (in the hall) altogether. It used to be very dull indeed. I move through the hall with more confidence."
- "I can see more details – getting around the living room. I now know where the furniture is."
- "I can move around the living room a lot easier."

**Rooms that looked better made people feel better:** Three respondents reported significant improvements in the appearance of their rooms. What had previously seemed dull or dirty now looked cleaner and brighter and this lifted people's mood and improved their sense of wellbeing.

- "It is a completely different effect (in the living room). The old bulbs were limited in wattage and thick glass shrouded the light. The new bulbs directly illuminate the room. I find the new light pleasant and it suits my eyesight. The lighting gives me a lovely atmosphere."

*"It is light  
over the stairs.  
I can now see  
the steps."*

- “It’s marvellous. It’s like daylight now. It’s made the (living) room so much brighter, compared with how dull it was before. Previously there were more shadows. It has had an effect on my wellbeing, especially first thing in the morning. I thought the place was dirty before. Now I show off the room. It’s made all the difference.”
- “The hall looks nicer – it is cleaner and brighter.”

**Families and friends noticed the difference:** Improved feelings of self-worth were confirmed by comments from family and friends, who also noticed the brighter lighting and better spread of light.

- “My children all thought that the lighting changes were a good idea – but they didn’t know how to go about helping me. My son reckons it’s like Blackpool Illuminations.”
- A sighted son who lived at home said: “the living room looks much brighter”, in the kitchen “there are no reflections from the lights”, and in the bathroom “overall there is a better spread of light.”
- “My sister says that the living room and the kitchen look so much brighter and the lights in the lounge are very attractive. I’ve shown visitors round my house and they are amazed at the difference.”
- “Visitors have said that, in the living room, bathroom and study, it is much brighter and it looks better.”
- “Our son said ‘Blimey mother, it’s bright! If it’s better for you, that’s fine.’”

## What Changes Were Made?

The kitchen was the room in which most lighting changes were made (all nine homes), closely followed by the living room and bathroom (seven homes each). Lighting changes were made in the hall and stairs area of six of the nine homes; in five rooms which were used as a “study”, “office” or “spare room”; and in two bedrooms. There was one instance where lighting was installed outside the home.

### In the kitchen

What was generally needed in kitchens was brighter lighting, ensuring that light was focussed on important areas. Most of the kitchens had fluorescent strip lights fitted to the ceilings. Where there was already a single fluorescent tube, double or



*“Visitors have said that, in the living room, bathroom and study, it is much brighter and it looks better.”*

triple tubes were fitted to increase the levels of light. "It's fabulous," said one participant. "There are now no dark corners. I can find the can opener." A relative commented that confusing reflections caused by the old lighting had now been removed.

In one home, spotlights that "kept going out" were replaced with fluorescent strip lights. In another, two spotlights were added to focus light specifically on the cooker and the sink unit. "It is now easier to pour a drink. I can see when water boils. It helps with vegetable preparation – in fact, with all my main cookery – measuring out and making bread. It provides the contrast I need to see the bottom of a dark pan."

New or improved strip lighting fitted under kitchen cupboards threw extra light on to work surfaces, and in one instance two strip lights on either side of the cooker illuminated the hob. "It's a good idea – having a new light on the worktop surface," said one participant. Another did have existing under-cupboard strip lighting but it was not bright enough and was overheating. After it was replaced he said, "The changes now allow me to prepare food. It is easier to see a pot on the stove and I can also see a cup and fill it from the kettle."

In one kitchen there was a particularly dark area near the table and this was solved with a freestanding uplighter and the fitting of a three plug electricity socket in place of a two plug socket. This kitchen also had two new circular fluorescent lights fitted to the ceiling. "The new lighting lights up the whole kitchen. The independent switches give flexibility."

All the changes dramatically improved people's ability to prepare food and enjoy cooking. From tasks such as vegetable preparation to pouring hot water water from a kettle, participants reported improvements in seeing what they were doing. The changes also improved the atmosphere of the kitchen. One participant said, "At night, the kitchen is brighter. My yellow blind reflects the light and 'lifts' everything."

### **In the living room/lounge**

Old lighting fixtures which were inadequate were replaced. Several of the homes had single pendant fittings in the centre of the ceiling. For a better and more even spread of light



*"It helps me with veg preparation – in fact with all my main cookery."*

these were mostly replaced with a fluorescent light in the centre and supplemented with additional wall lights or spotlights. “Marvellous, it’s like daylight now. It’s made the room so much brighter compared with how dull it was before. Previously there were more shadows. Blood sugar testing is now much easier. I can find a plug much easier. It’s given me more confidence. When I watch TV, I often just use the wall lights. It has had an effect on my wellbeing, especially first thing in the morning.”

In some cases, just replacing bulbs had a major effect, changing both the quality and effectiveness of the light. “It is a completely different effect. The new light is pleasant and suits my eyesight.”

In one case, there were plenty of ceiling lights but the bulbs were all low wattage. Just upgrading the lightbulbs doubled the light output. “Previously I couldn’t read unless it was bright sunlight. Now, it allows me to read and I can move around the room a lot more easily”

In two instances, dimmer switches were installed which gave the users more flexibility. “You can dim the lighting if you want to watch TV.”

All responses noted greatly improved levels of brightness. Three people reported improvements in their ability to read, and two said they could move around the room more easily. For one respondent the new lighting was a boost to her sense of well-being. “I thought the place was dirty before. Now I show off the room. It’s made all the difference.”

### **In the bathroom**

In five of the bathrooms the existing lighting was found to be unsafe for use in a bathroom. Old bulbs and ceiling lights were replaced with new waterproof versions. In two instances old wiring was found to be burned out or hardened and a recommendation was made to replace it. “I’ve lived in the same house for 60 years. The engineer spotted problems I wasn’t aware of and alerted me to the need to replace some of the wiring. It’s given me more peace of mind. My electrician has replaced the faulty wiring and put in a new fusebox.”

Many of the participants found that the new lighting gave a better spread of light. In three instances, respondents noted that they could see themselves better in the mirror. One said,

*“It is a completely different effect. The new light is pleasant and suits my eyesight.”*

“I can now have a wet shave in the bathroom – previously I shaved by the window in the bedroom.”

### **In the bedroom**

Lighting changes in the bedrooms did more than brighten up dark places – they also used technology to make life easier. In one home, where four new ceiling-mounted spotlights were fitted, the owner was delighted that he could use a touch button control to switch the lights on and off from his bed. Previously he had managed with a bedside lamp which tended to get hot. He reported that the new lighting had opened everything up and that it was now possible to see into all the drawers and wardrobe.

In another bedroom, small strip lights were placed over the dressing table and one in each of two wardrobes. All three lights could be controlled with just one switch, ensuring that a light could not be left on accidentally. This participant found the wardrobe lights brought the colours of clothes back into focus. Now it was possible to distinguish between dark colours, making “a big difference when I’m choosing what colours to wear.”

### **In other rooms**

In four of the homes a bedroom was used as a “study”, “computer room”, “office” or “spare room”. Users needed to see a range of items including a computer keyboard, printer, scanner, talking computer or talking reading machine, even a freezer. All the rooms needed to be brighter and the new lights fitted were typically a new central ceiling light, or fluorescent tube with diffuser. “It has made a world of difference,” said one participant. Another said: “I noticed that the light comes on quickly. It’s much easier to find stuff. I notice paper on the desk, and it helps me find the equipment, scanner and bookshelves.”

In a computer room a new clamp-on flexilight with built-in magnifier was fitted. “The new fluorescent tube light allows me to see the keyboard better. The flexilight illuminates a book and I can use the magnifier to read.”

In one home, a light fitted inside a cupboard made a big impact. Previously there was no light at all in this cupboard which contained foodstuffs. “Instead of feeling around, I can now see so much better than before. It is not too bright.” In another home, there had been no light in the utility room



*“A big difference when I’m choosing what colours to wear.”*

and so a large central ceiling light was fitted together with a spotlight over the freezer. “The big difference is that I can now see what’s in the freezer,” said the respondent, who was now also able to put a key in the lock of a side door and see the step more clearly, reducing safety risks.

### **In the hall and on the stairs**

In six of the nine homes, hallways, stairs and landings were made safer and easier to navigate by fitting more lighting or upgrading existing fittings that failed to provide enough light.

In one home, two separate circular fluorescent ceiling lights were fitted - one directly over the stairs and another over the landing. In two of the hallways small ceiling lights were replaced with ‘D’-type fluorescent tubes – one with a circular glass diffuser to spread the light evenly.

All the participants reported the hall and stairs being brighter. They spoke of being able to “cross the landing safely” of “being able to see the stairs” and how using the phone in the hallway had become easier. “It used to be very dull indeed. Now I can see the big button phone better. I can move through the hall with more confidence.” Another said the brighter lighting was “A great help at night.”

### **Outside the home**

In one home a dark entrance was improved with a bulkhead light installed by the front door and a floodlight on a sensor placed near the garage. The owner commented that visitors now had light to see by and that finding the front door keyhole – by sight rather than touch - was now easier. The floodlight made negotiating the drive easier.

## **Study 1: Conclusions**

Overall, it was clear that all the participants were pleased with the lighting work, describing how it had improved and in some cases transformed their day-to-day lives. All nine participants rated the lighting changes as either “very successful” (7 respondents) or “successful” (2 respondents). One interviewee said: “if it was marks out of 10, I would give it 25! I can’t give it a high enough score.” These results, when added to Pocklington’s previous studies, show the importance to people’s lives, both practically and emotionally, of providing better lighting to older people with sight loss.



*“The big difference is that I can now see what’s in the freezer,”*

**Note:** This was a small study from which the findings can reasonably be added to those from earlier Pocklington lighting implementation projects. Together those assessed and adapted the lighting in: 57 homes (2002), 8 flats at Pocklington Rise, Plympton (2002/3), 25 properties in and around London rented by Pocklington to tenants who were visually impaired, a further 88 Pocklington-owned properties and another 7 flats at Pocklington Court, Roehampton (2008).

The nine participants in this study were either members of the former Stourbridge Institution of the Blind and/or users of services provided in the Stourbridge area by Thomas Pocklington Trust.

### Further Follow-Up

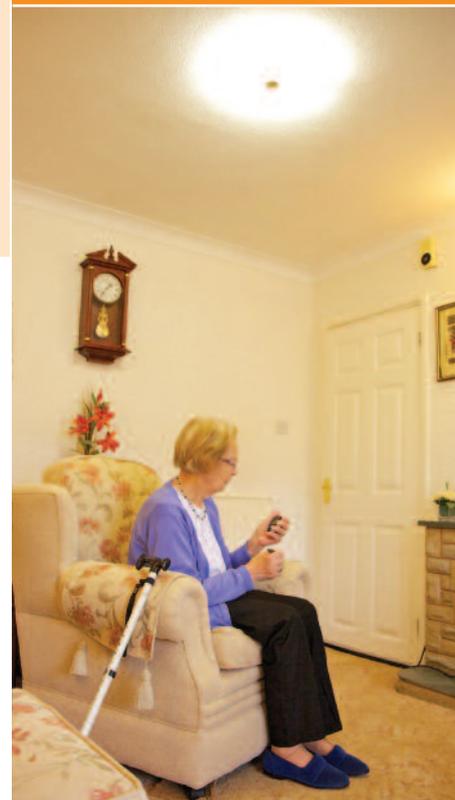
Around 15 months later, an independent evaluator returned to interview the seven participants who were still living in their own homes and found out if and how the lighting adaptations had affected them in the past year. The evaluation found that everyone felt that the lighting changes had improved their lives. However, because most had deteriorating vision they were now less able to see, even with the new lighting.

*“When it was done it was excellent for me, but I don’t notice it quite so much now.”*

*“My sight is much worse now than it was before. It is more and more difficult to read.”*

Even so, all but one of the participants reported that they still benefitted from the lighting changes and were able to do more than they would have been able to do without the changes.

Being able to prepare food more safely and more easily and find things were key benefits, alongside being able to select clothes and manage personal care more effectively. In most homes, lighting had been improved in the hall, stairs and landing and while participants initially felt this had not been strictly necessary, five of the seven noted that they felt the improved lighting did help them move around more safely and reduced the chance of a fall.



Participants described the value of being able to switch lights on and off from convenient locations as being almost as important as better quality of light, reinforcing Pocklington's research into the importance of appropriate lighting controls.

Most of the participants were happy living independently and reported that the improved lighting was one of the things that made that possible. However, the deteriorating eyesight of most and the increasing frailty of some did mean that the period during which they benefitted from better lighting could be relatively short and that regular reassessments to identify still better lighting are likely to be helpful.

"The work surface and phone are much easier to see now. I am one hundred percent grateful for it, it made a hell of a difference."

## **Study 2: Cost effectiveness of lighting adaptations in relation to falls**

Another study, carried out by Anna Clarke (2011) at the University of Cambridge, set out to explore whether the installation of better lighting in elderly people's homes could be shown to have cost benefits, in particular by reducing the number of falls.

### **Background**

It is well documented that sight loss is linked to falls (College of Optometrists, 2010) as well as to a range of other health problems, and that, as well as the negative impact this has on the lives of people with sight loss, there are also huge cost implications for society. Now, with rising costs of care and an increasing older population there is more interest in adapting homes so that older people can live independently at home for as long as possible.

The personal responses of people with sight loss recorded in the evaluation of lighting adaptations outlined above clearly show that lighting is an important adaptation that supports independence and quality of life. But charities and other organisations increasingly need to show that the services they offer are cost-effective as well as being a benefit to society. (Oxford Brookes, 2010)

To this end, the study of cost effectiveness tested the idea that the benefits of lighting adaptations could be expressed in monetary terms. It focused particularly on the cost of falls –

an area identified by The Department for Communities and Local Government (DCLG, 2008) as one in which savings might be made for the NHS.

## Study 2: The Key Findings

The study looked at information about the costs of lighting adaptations in previous studies and combined this with a review of existing literature on lighting and falls. It aimed to calculate the cost effectiveness of lighting adaptations in relation to reductions in falls. It found that there is not yet enough data to make this calculation. The study exposed a series of uncertainties and assumptions that need to be resolved if the true relationships between the costs and benefits of improving lighting are to be judged accurately.

### These included

- Substantial uncertainty over the degree to which better lighting can reduce the risk of falls. Falls prevention programmes have thrown up wide-ranging results with reductions in falls of between 6% and 33% and these programmes offered various home improvements, not just lighting.
- Likely under-estimates of the number of falls due to sight loss - the formula previously used for estimating this (Scuffham et al 2003) was revised in 2011 (Boyce, 2011).
- Likely under-estimates of the costs related to falls. Previous studies, for example, have estimated that people spend six months in a care home after a fall, but this could actually be far longer.

The study also highlighted the fact that falls are only part of the benefit equation. There is substantial literature to show that better lighting improves older people's quality of life and mental health, including those with dementia, and supports independence and social engagement. This means that savings could go far wider than the cost of falls.

Savings to the NHS might include the costs of other problems related to poor lighting such as cuts or burns, and depression, as well as reduced health difficulties in later life that might be triggered by or worsened by falling. Social care budgets might need to spend less on supporting people after NHS care, as well as needing to provide less support for people



who have greater independence in their own homes and feel a greater sense of social engagement and inclusion.

If the value of lighting adaptations is to be translated into monetary terms then there is a need to refine the uncertainties. Recommendations from the study include:

- Develop a model to quantify improvements to quality of life related to lighting.
- Produce up-to-date costings of falls, including an estimated cost per fall to the NHS and social services.
- Establish a sliding scale of cost estimates which reflects the varying length of time patients stay in a care home.
- Identify the costs of falls where people do not attend A&E. Forty per cent of ambulance call-outs to elderly people who have fallen do not lead to a visit to A&E but little is known about the ongoing health costs resulting from these falls.
- Research the benefits of different types of lighting improvements such as lights providing a higher level of lumens, or greater control.
- Establish evidence that correction of vision is linked to reduced risk of falls. It is seven years since NICE concluded that there was no specific evidence that vision correction alone reduced risk of falling, yet there do not appear to have been any studies looking into this since 2004.

## Further research needed

As more people want and are encouraged to remain in their homes, there is a growing need for support and housing adaptations that can maintain independence as well as interventions to demonstrate their cost-effectiveness and other defined outcomes.

The two studies outlined above and the follow-on evaluation of the Stourbridge houses are not conclusive in terms of the cost-effectiveness of lighting adaptations in relation to falls, but this is more likely to be due to lack of data than a negative relationship. What they do show is positive impacts on independence and well-being and a clear need for research to explore and quantify the costs and associated benefits of improving lighting, not just on reduction of falls, but on all aspects of the lives of people with sight loss.

The experiences of people whose lighting had been improved suggests that an important consideration in assessing both costs and benefits is that as people's sight and wider health changes, so do their needs. The importance of addressing changing needs has been identified in other research commissioned by Pocklington which highlighted a need for action to review and update elements of care, support and housing over time (Thetford et al, 2009).



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### Note:

The installation and evaluation of lighting adaptations in Stourbridge was commissioned by Thomas Pocklington Trust and delivered by independent contractors. The evaluation 15 months later was undertaken by Anna Clarke, Cambridge Centre for Housing and Planning Research, as part of a series of projects and internally commissioned by Pocklington to collect information about the longer term impacts of lighting adaptations. For further information please contact Thomas Pocklington Trust.

## Background on Pocklington

Thomas Pocklington Trust is a voluntary sector organisation providing services across England which assist and enable people with sight loss to reach their potential. Our five strategic aims are:

**Knowledge:** we increase understanding of how to prevent avoidable sight loss, how to provide the most effective support to alleviate sight loss and how to apply this knowledge.

**Empowerment:** we enable people with sight loss to have control over their lives and their services.

**Services:** we provide services that people with sight loss need.

**Housing:** we help people with sight loss to get and keep a home that meets their needs.

**Sustainability:** we will be there for the long term future.

Research is a keystone of our 'knowledge' strategic aim. We manage a programme of research to identify and promote practical ways in which Pocklington and others can improve the lives of people with sight loss.

Our research team works with a range of partners who are recognised across the sight loss sector and in the academic world. We welcome collaborative opportunities and research proposals related to our main themes and priorities. You can find out more about Pocklington and its research programme at [www.pocklington-trust.org.uk](http://www.pocklington-trust.org.uk).

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*In this publication, the terms 'visually impaired people', 'blind and partially sighted people' and 'people with sight loss' all refer to people who are blind or have partial sight.*

## Thomas Pocklington Trust



Housing and support for  
people with sight loss

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