

# Lighting

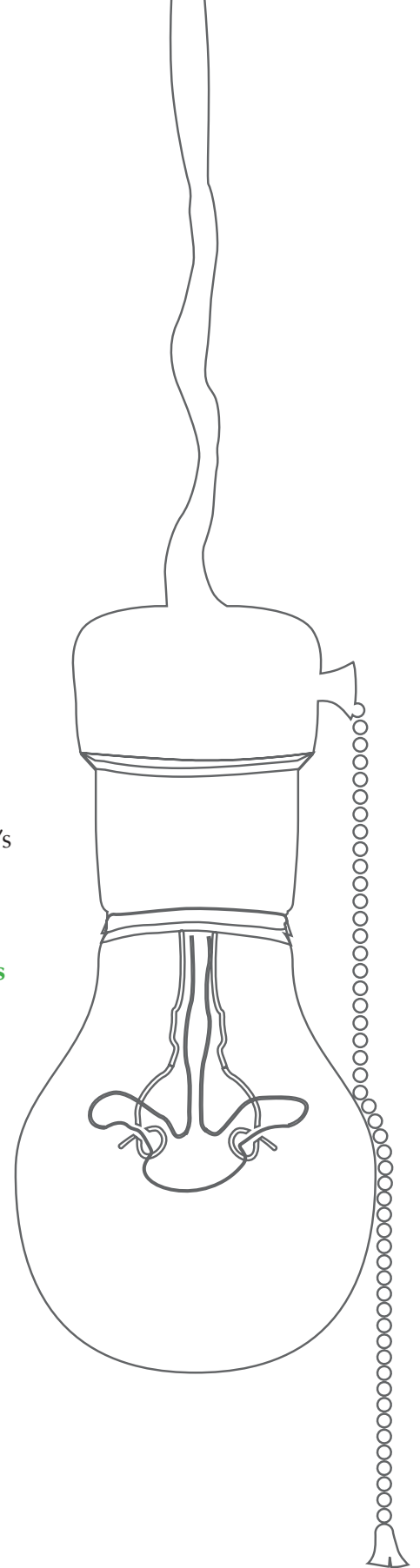
Many factors affect a person's ability to manage and interpret their environment. As a person ages there are a number of "normal" age related changes to vision that may be anticipated. Additionally, age is the greatest risk factor for Alzheimer's and related dementias. Hence, changes to vision due to aging eyes coupled with problem solving and perceptual difficulties associated with ADRD, **persons with dementia especially need appropriate lighting to assist with positive perceptions and interpretations of their environment.**

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Research on adequate lighting and it's affects on Persons with Dementia (PWD) indicate the possibility to:

- > **dissipate shadows**
  - > **reduce mood disturbances**
  - > **positively affect eating**
  - > **optimize communication opportunities**
  - > **encourage well-being**
  - > **increase natural activities (illumination)**
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For further information on lighting literature and dementia, please refer to the companion document *Why is Lighting Important to Older Adults?* on the AKE Resource Centre ([www.akeontario.org](http://www.akeontario.org)) or on the Murray Alzheimer Research and Education Program (MAREP) website at ([www.marep.uwaterloo.ca](http://www.marep.uwaterloo.ca)).



## Light Intensity & Colour

### RECOMMENDATION:

Lighting with a high colouring rendering index providing 30-70 foot candles (1 foot candle = 10 lux) for indoor illumination in main areas of LTC including living rooms, resident rooms, bathroom, tub, and activity areas

**WHY?** Overall, lighting in LTC is well below the required level for normal age related changes (1,2). There are a variety of terms that describe lighting including the term ‘full spectrum lighting’ that has been identified as the best type of artificial light (1). Ambient areas such as living rooms should be at 30 – 50 foot candles (300 – 500 lux) and should increase for task specific activities to 50 – 70 foot candle (500 – 700 lux) (4,5).

### Strategies include:

- lighting that mimics natural sunlight such as incandescent or new fluorescent T8 lamps (3)

## Task Lighting

### RECOMMENDATION:

Task lighting (direct illumination) of vertical surfaces at higher levels than ambient lighting, on average 700 lux

**WHY?** Task lighting is provided in highlighting areas of interest. Shadows will be eliminated (6). Activities of interest can include: bathroom shaving areas, reading or activity areas, physical/ occupational therapy or examination rooms should have a higher lux than ambient areas (4,5).

### Strategies include:

- task lighting in areas of interest
- warm or daylight type table or stand lamps (7)

## Natural Light

### RECOMMENDATION:

Access to natural light (e.g., windows, outdoor activities, greenhouse activities) and windows overlooking outdoor areas to promote well-being

**WHY?** Natural light enhances well-being and natural rhythms of our body, improve overall well being and can positively impact sleep disturbances (8). Engaging with the natural environment involves allowing for both planned and spontaneous outdoor opportunities – including winter activities (6). Windows are to provide positive stimulation and access positive memories.

### Strategies include:

- windows to overlook a focus like a bird feeder or woods vs. parking lot which may promote exit seeking
- positive “centres of focus” (e.g., aquarium, mural) near any windows where views are deemed to be poorly located

## Adapting to Transitions in Lighting

### RECOMMENDATION:

Graduated lighting from indoors to outdoors

**WHY?** Older adults take longer to adapt to light changes (9). Graduated lighting avoids temporary blindness due to extreme changes in bright to dark and dark to light and reduces falls (5).

### Strategies include:

- awnings, brighter interior lights in entrance ways

## Day and Night Lighting

### RECOMMENDATION:

Lighting is able to be adjusted throughout the day and act as a cue for day time and night time for persons with dementia

**WHY?** Bright corridor lighting at night can cause confusion for persons with dementia as it does not provide any cues and can disrupt sleeping patterns and routines (7).

### Strategies include:

- dimming the corridor lighting late evening/near bedtime

## Avoiding Misperception

### RECOMMENDATION:

Lighting has even distribution throughout an area and surfaces are free from glare  
Elimination of pooled lighting and shadows which create false illusions of depth

**WHY?** Glare can lead to discomfort, annoyance, or temporary blindness (9). Persons with dementia may have perceptual disturbances triggered by glare surfaces such as highly polished floors looking as though they are wet or slippery. Bright sources close to the direction of view interfere with seeing; can make it difficult for individuals with dementia to navigate corridors/ perform activities; can cause discomfort (4).

### Strategies include:

- using multiple lighting sources and avoiding lighting from below (5)
- changing the height and angle of the light (5)
- using frosted versions of lamps or light fittings such as lamp shades to screen or reflect the light (5)
- using sheers on windows to filter natural day light when needed (9)

## Individual Preferences

### RECOMMENDATION:

Individual preferences for lighting are respected and balanced with safety

**WHY?** PWDs are provided opportunity to incorporate individual lighting preferences; there is no one standard for everyone.

### Strategies include:

- desk lamps or dimmers for built in flexibility to accommodate individual needs

## Maintenance Standards

### RECOMMENDATION:

Appropriate practices including lighting policies and maintenance standards in place

**WHY?** Staff need to be skilled and aware of the unique needs for residents and be able to adjust lighting throughout the day to meet their needs (i.e. dimming lights at the end of the day, avoiding shadows) (5)

Well lit signs with directional / way finding cues will improve way-finding by staff, family, and PWDs. Note: *For additional information on signage, please refer to the signage knowledge to practice recommendations.*

### Strategies include:

- regular cleaning of residents glasses to maximize eyesight
- pulling down shades; dimming lights at bedtime
- well lit areas to avoid shadows
- ensuring lights are immediately replaced, not turned off in high traffic areas
- appropriate signage for lights that should remain on throughout the day
- ensuring windows are kept clean and bushes around windows are trimmed back to minimize shadows and increase light (5)
- well lit signs with directional/way finding cues

*Do you have design considerations to suggest?* Please send us your feedback by visiting the AKE website and submitting your questions and / or comments to the Design and Dementia Knowledge to Practice Recommendations Online Feedback Form located in the Design and Dementia Community of Practice web page: [www.akeresourcecentre.org/Design](http://www.akeresourcecentre.org/Design)

## References Cited

1. O’Keeffe, J. (n.d.) Creating a Senior Friendly Physical Environment in our Hospitals. The Regional Geriatric Assessment Program of Ottawa.
2. Lepeleire JD, Bouwen A, Coninck LD, Buntinx F. Insufficient lighting in nursing homes. Journal of the American Medical Directors Association 2007;8(5):314-317.
3. Lighting Research Center. <http://www.lrc.rpi.edu/programs/nlpip/lightingAnswers/fullspectrum/abstract.asp>
4. Illuminating Engineering Society of North America (IES) 2007
5. Pollack R, McNair D, McGuire B, Cunningham C. Designing lighting for people with dementia. 2008
6. Torrington JM, & Tregenza PR. Lighting for people with dementia. Lighting Research and Technology 2007;39(1):81-97.
7. Benbow personal communication
8. Sloane PD, Williams CS, Mitchell CM, Preisser JS, Wood W, Barrick AL, Hickman SE, Gill KS, Connell BR, Edinger J, Zimmerman S. High-intensity environmental light in dementia: effect on sleep and activity. J Am Geriatr Soc 2007;55(10):1524-33.
9. Noel-Waggoner E. Lighting solutions for contemporary problems of older adults. Journal of Psychosocial Nursing 2004;42(7):14-20.

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## Acknowledgements

The Alzheimer Knowledge Exchange Design and Dementia Community of Practice is pleased to share the following Dementia-Friendly Design Considerations document focusing on **LIGHTING**. This is the **first in a series of dementia friendly design consideration documents** that, with permission, have been adapted and build upon both the foundational work and senior friendly hospital audit tool developed by **Regional Geriatric Program of Eastern Ontario**.

### LIGHTING

Version 01.

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**DEMENTIA-Friendly Design Considerations** is a series of ‘Knowledge to Practice Recommendations’ related to important physical design elements to facilitate the process of persons with dementia and their caregivers to make sense of their environment and improve well-being. The Knowledge to Practice Recommendations are living or dynamic documents which will be continually edited and updated by the AKE Design and Dementia Community of Practice based on emerging quality evidence and the integration of both practice-based and experiential knowledge of those caring for persons with dementia.