

The design Statement:

The design brief asked to identify a need within the aging community which can be enhanced by a new luminaire design. Research in to the aging population uncovered the need for night lighting to assist in safely moving around at night without causing harm from slips and falls.(Rea, 2015) The luminaire designed is aimed at providing a light source that can illuminate the area around the person while using their walker. It does this by using two different light sources, a wide area diffused light and a bright intense spot light. These two light sources together provide the aging eye with the ability to focus on the task ahead of them while also providing a lit area around the front of the walker as a safety zone.

The luminaire uses two types of LED lamp to produce the desired results. It does this by first producing a flood effect through the use of low powered SMD LEDs at 2800K and a diffuser, while a medium powered SMD LED at 5700K is focused to an intense spot. This combination helps the aged person giving them the ability to distinguish dangers ahead. The luminaire design was chosen because it did not require any major maintenance. It was also designed to be simple to use with magnetic mounts that can detach from the base or charger without tricky clips or latches. It's this universal bidirectional mount that ensures no mistake can be made while placing it on the recharge station.

The luminaire is made up of two different areas flood and spot, using two different typed of SMD LED lamps. The flood section uses 10 Philips SMD type 2385 3.2V LED, they were chosen for their low power consumption and warm light characteristics. The spot light LED needed to produce a bright white light with good colour properties, as aging eye loses the ability to absorb light and the better reproduction of colours helps distinguish objects.(Rea, 2015) Because of this a Philips type 3535 3.2V ceramic SMD LED was chosen for is high CRI and brightness.

The luminaire, mount and charger are produced from Glass fibre ABS injection moulded plastic, this gives them strength to best resist impact damage and daily wear and tear. The internal components batteries, electronics and general mounting hardware were off the shelf part purchase in bulk as this kept the cost down.

Through the design process it was discovered there is a need for night lighting aimed at the aging community and their unique requirement. The Night Walker luminaire was designed around these needs to assist the aging community in safely moving around at night and increase the mobility of the person using it.

References:

Rea, M. (2015). How can lighting help me see better at home? | Senior | AARP | Light and Health | LRC. Retrieved May 27, 2016, from <http://www.lrc.rpi.edu/programs/lightHealth/AARP/senior/helpingOlderAdults/lightingPrinciples.asp>