

COCKLE BAY WHARF REDEVELOPMENT SSD 7684

We are writing in response to the public meeting that was held on 5th March 2019. We are currently in Thailand and will not be attending in person. We would like to advise our opposition to the building of the “tower” structure. The reasons for this opposition will be outlined in this paper, with supporting documentation specific to, and regarding our case for your consideration.

Our apartment is situated on the 10th Floor of Astoria Tower, the unit faces the westerly aspect (looking over Darling Harbour). Obviously the loss of view will be significant, but in addition, I would like to submit other reasons for our opposition.

The lack of sunshine hours has already been investigated. However, it would appear the amount of **light reflected** off the Sofitel, ICC and other buildings have not been investigated, and this is a significant contributing factor. Our unit is long and narrow and the natural light was in the past insufficient, the morning light now has become much better due to these buildings having an abundance of glass reflective windows. Therefore, as the dawn sun is rising from the east, our unit is flooded with natural light. This reflection is present for many hours during the morning and stretches into the afternoon. This phenomenon would be blocked fully by the proposed “tower” structure.

This may seem to be an insignificant matter, this is not so in our case, this we will explore later. Outlined is some scientific evidence and information that will support our submission:

A majority of people who live in Australia are aware of the risks for skin cancers caused by the sun, however studies had revealed that **sunlight avoidance** may be more of a cost than benefit for overall good health, and furthermore **sunlight has cardiovascular benefits** (<https:karger.com/Article/FullText/441266>). Due to our advancing years this is relevant.

Seasonal Affective Disorder (SAD) is a type of major depressive and mood disorder, subsets in which people that have normal mental health throughout most of the year, exhibit depressive symptoms at the same time each year most commonly in winter. One theory stated by **Lam R.W.; Levitan, R.D (2000)** is that SAD may be related to melatonin which is produced in **dim light and darkness** in the pineal gland, since there are direct connections between the retinal and pineal gland. Melatonin secretion is controlled by the endogenous circadian clock, but ideally can also be suppressed by **bright light**.

Furthermore, many mood variations are believed to be **related to light**. An argument for this view is the effectiveness of bright-light therapy (**Lam, R.W.; Levitan, R.D.; Enns, M. W.; Morehouse, R.; Michalek, E. M. (2006) “The Can-SAD Study: A randomized Ccontrolled Trial of the Effectiveness of Light Therapy.**) This evidence states the even cloud cover may contribute to the negative effects of SAD, and that many patients with SAD have a delay in their circadian rhythm, and that **bright light** treatment corrects these delays which may be responsible for the improvements in mental health for these patients.

Dawn simulation has also proven to be effective, in some studies, there was an 83% better response when compared to other bright light therapies. Of course spending more time outdoors and exposure to sunlight can be beneficial, however, prolonged **direct** sunlight should be avoided due to the threat of skin cancer (**Osborne, J.; Raetz, J.; Kost, A. (2014). “Seasonal Affective Disorder, Grief Reaction, and Adjustment Disorder”.** Medical clinics of North America. 98 (5).

As diurnal creatures, we humans are programmed to be outdoors while the sun is shining and home in bed at night. This is why melatonin is produced during the dark hours and stops *upon optic exposure to daylight*. This pineal hormone (melatonin) is a key pacesetter for many of the body's circadian rhythms. It also plays an important role in countering infection, inflammation, cancer and auto-immunity, according to a review in the **May 2006 issue of "Current Opinion in Investigation Drugs"**. When people are exposed to sunlight or very bright artificial light in the morning, their nocturnal melatonin production occurs sooner, and they enter into sleep more easily at night. Melatonin production also shows a seasonal variation relative to the availability of light, with the hormone produced for a longer period in the winter than in the summer. The melatonin "rhythm phase advancement" caused by exposure to bright morning light has shown to be effective against insomnia, premenstrual syndrome, and seasonal affective disorder (SAD) (**Mead M. N.; 2008.**<https://www.ncbi.nlm.nih.gov/pmc/articles>).

The Melatonin precursor, Serotonin, is also affected by exposure to daylight. Moderately high serotonin levels result in more positive moods and a calm yet focused mental outlook. Indeed SAD has been linked with low serotonin levels during the day as well as with a phase delay in nighttime melatonin production. (**Mead M.N.; 2008**)

Light effects on circadian rhythm are the effect that light has on circadian rhythms. Most animal and other organisms have "built in clocks" in their brains that regulate the timing of biological process and daily behavior. These "clocks" are known as circadian rhythms. They allow maintenance of these processes and behaviors relative to the 24-hour day/night cycle in nature. Although these rhythms are maintained by the individual organisms, their length does vary somewhat individually. Therefore they must, either continually or repeatedly, be reset to synchronize with nature's cycle (**Kolmos E. Davis SJ (September 2007) "Circadian rhythms: rho-related signals' in time-specific light perception" Current Biology. 17 (18)**). In order to maintain synchronization ("entrainment") to 24 hours, external factors must play some role. The human circadian rhythm occurs typically in accordance with nature's cycle. The average activity rhythm cycle is 24.18 hours in adulthood but is shortened as age increases. One of factors that influence this entrainment is *light exposure to the eyes*, (**Baehr EK, Fogg LF, Eastman C (December 1999). "Intermittent bright light and exercise to entrain human circadian rhythms to night work". The American Journal of Physiology. 277 (6)**).

The hormones cortisol and melatonin are effected by the signals light sends through the body's nervous system. The hormones help regulate blood sugar to give the body the appropriate amount of energy this is required throughout the day. Cortisol levels are high upon waking and gradual decrease over the course of the day, melatonin levels are high when the body is entering and exiting a sleeping status and are very low over the course of waking hours. The earth's natural light-dark cycle is the basis for the release of these hormones.

The proper exposure to light (sunlight versus artificial light) has become an accepted way to alleviate some of the effects of SAD. In addition, exposure to light in the morning has been shown to assist Alzheimer patients in regulating their waking patterns. There is a myriad of researched articles praising the health benefits of sunlight on "normal" mental health, from major depressive disorders such as hopelessness, worthlessness, thoughts of suicide, loss of interest in activities, withdrawal from social interaction, sleep and appetite problems, difficulty with concentrating, decreased libido and agitation, just to mention a few. SAD is typically associated with winter depression, but springtime lethargy and other seasonal mood patterns are not uncommon (**Medlineplus Overview seasonal/affective disorder** (<https://www.mayoclinic.com/health/seasonal-affectivedisorder.html>)).

Each individual case is different. In many aspects, activity is diminished in the winter months and it is suggested that the *reduction in sunlight* is largely to blame.

In my case, I have been a long time sufferer of SAD and some degree of Claustrophobia. I am aware and avoid situations which can trigger further episodes. My profession as a Registered Nurse required me to work shift work including many night shifts. As research suggests, this practice has a radical negative change on circadian rhythm. I am now retired and have been able to reverse the effects of abnormal Day-sleep/night- awake patterns. This has been successful on the whole, by natural sunlight therapy.

My husband has been diagnosed with early stages of Dementia. We are both working actively to maintain or even improve the affects of our mental health conditions. Interestingly many people perceive that good mental health is not important. This is due to the stigma spanning many years due to the negative "labels" given to mental health sufferers, E.G." Lunatics, loopy, nuts, crazy" just to mention a few. Furthermore, physical illnesses do not have labels attached;" Cancer is just Cancer".

We wonder how many residents in Astoria Tower would be affected in a similar way due to the proposed tower causing this light invasion?

We believe there are currently "WELL" rulings (in relation to light) when office buildings are being constructed. Could this be due to the detrimental effect of not enough natural lighting in the work place creating an unhealthy working environment for employees. Surely this would extend to Residential buildings and tenants?

We can't understand why the original plan for the position of the Tower in Darling Harbour was changed. This previous plan appeared to have minimal impact on residents in Astoria Tower. In fact, even though we would have lost some of the view, there would have been little change on the "reflective light" we currently appreciate. We wouldn't have objected to this original proposal.

To conclude, we feel the "light pollution" caused by the construction of the new tower will have a detrimental effect on our mental health. Furthermore, the inability to visualize daily activities we now enjoy watching (on the Harbour), plus the feel good experiences this creates will be diminished.

We are both cynical that this objection will have "any thoughts given to it". Perhaps a futile exercise, what chance does the "power of two" elderly folk, have against a multimillion dollar construction project!

Regards.

John (Jack) & Jill Mason