



## Response to:

**Addendum to the Final Environmental Impact Statement for the Downtown Height and Density Changes EIS prepared for the 5th and Virginia Development (Master Use Permit No. 3019699-LU) by the City of Seattle Department of Construction and Inspections on November 18, 2019**

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Perkins and Will has filed a response (Feb. 18, 2020) to public comments that were critical of the Addendum issued by the City for this project. Perkins and Will's response asserts that the analysis done by its consultant, Stantec, is valid. Stantec relies heavily in the WELL protocol.

In this response I would first like to point out one major weakness in the impact assessment developed by Stantec. A major flaw in their assessment is that is based on light facing the window. Although this could be acceptable under some conditions, for instance in an office space where people are heading always in that direction, it is unacceptable for a family residence. Resident Sosnowy rightly raised this issue in his lay response to the Addendum and the answer by the applicant states "*In Stantec's analysis, if the study evaluated impacts facing away from daylight, the relative difference between the base condition and the new condition would be the same because the model was oriented identically for both cases.*"

**This response reveals ignorance about how the circadian system entrains to light.** The circadian system responds to light by changing its phase, a process known as entrainment, but the intensity of light has to be above a given threshold to be effective in entraining the circadian system. Thus, what matters is not the relative difference between the "with" and the "without" conditions, but instead whether under the "with" condition the intensity of the light is above this threshold. This can only be answered if the estimates for light exposure in the "with" condition examine all possible angles of residents relative to the window. Considering only the situation in which residents are looking straight at the window leads to modelled values for light exposure that are substantially overestimated. There can be more than an order of magnitude difference in the light intensity measured facing a window vs. away from it.

Perkins and Wills response fails to address several flaws in the Addendum. Various statements made in the addendum are used to minimize the negative impacts that construction of the Douglaston Tower would have on the residents of The Escala. I respond to the statements point by point, using italics to indicate statements quoted from the Addendum.

Statement #1. *The Brainard Study concludes that the empirical basis for understanding the effects of daylight is in the nascent stages and that there is "relatively little peer-reviewed, published data" to support the conclusion that daylight is superior to electric light in supporting human health.*

Although the statement by Dr. Brainard is accurate, it is important to note that there is no data whatsoever that supports that the opposite is true, *i.e.*, that electric light is better than natural daylight. In fact, given that the circadian system of humans has had more than 100,000 years of evolution under the entrainment by natural daylight, **it is highly unlikely** that natural daylight is inefficient in exerting the positive effects that morning light has on the circadian system of humans living in urban settings. Indeed, if household electric lights were equally efficient as natural daylight, how would we explain the fact that Seattle has more winter depression than San Diego? It remains to be tested whether household electric light under field conditions is as effective at exerting the positive effects that light has on the circadian system; experiments that show the effect of electric light on the circadian system under laboratory conditions are carried out under highly controlled conditions unlike those we typically live in.

Even if future studies discover electric light sources that are equally or more effective than sunlight, this would require the residents of The Escala to substantially change their indoor lighting conditions. My understanding is that the City is attempting to assess the health impacts of the tower on the Escala residents. That analysis, at least initially, should be done without regard to changes in electrical lighting that could be made in the Escala. The impact without those changes should be the baseline for characterizing the project's impacts.

Statement #2. *A copy of the Daylight Activity Study is attached as **Appendix D** to this EIS Addendum. The Daylight Activity Study shows that the average wakeful daylight hours spent at home in the Seattle area by residents is an estimated 4.3 hours per day. That average varies depending on*

*seasons, day of week, age and employment status. For example, employed residents and residents with family incomes over \$150,000 spend fewer wakeful hours at home during daylight. Conversely, the average Seattle resident spends approximately two-thirds of the annual daylight hours outside the home.*

The argument for how many hours the average Seattle Resident spends at home is flawed on two fronts. First, many of The Escala residents are retired older adults that likely spend more time indoors. Second, and most importantly, the total number of hours one spends at home is not that relevant. What is really important from the circadian perspective is the ability to access daylight in the early morning hours at home, when the exposure to bright light—such as daylight—is critical. Decreased daylight exposure during the morning is detrimental. An assessment of impacts during that critical time of day is misinformed if reference is made to access to daylight throughout the whole day.

*Statement # 3. These Escala residents will continue to have opportunities to access daylight based on their personal circumstances, lifestyles and preferences, including access to light in the approximately two-thirds of daylight hours that the average Seattleite spends outside their home.*

Again, the critical time for light exposure is the early morning. The morning daylight exposure will be substantially reduced for residents in east-facing units if the Douglaston Tower is built. The argument that they can go outside to get this light exposure “*based on their personal circumstances, lifestyle and preferences*” is irrelevant; without the Douglaston Tower they can get that exposure seated down in their living-room.

*While any reduction of access to daylight is likely to be perceived as significant by the residents of some east-facing Escala units, a reduction in access to daylight within one façade of one residential building is a less than moderate impact to the environment when viewed in context of the downtown urban environment as a whole.*

I am not sure what the Addendum means by “*less than moderate impact*” but “*one façade*”, particularly if it is an east-facing façade, implies many units with many residents that will experience severely decreased levels of morning daylight. I do not see this as a less than moderate impact. This issue was raised by resident Sosnowy in his lay response to the Addendum but was not properly addressed by the Applicant. How many residents need to be affected for this not to be “*less than moderate impact*”?