

Memo



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Date: April 22, 2019

To: Margaret Netto, City of Sunnyvale

From: Pat Angel, Ascent Environmental

Subject: **Response to the Laborers' International Union of North America Comment tot the AMD 1 Redevelopment Final Environmental Impact Report Dated April 19, 2019**

This letter focuses indoor air quality concerns and responds to our April 1, 2019 memorandum that addresses the commenter's March 24, 2019 comments on the EIR. This letter does not identify any no new issues which were not previously addressed in in our April 1, 2019 memorandum (original memorandum). However, the following additional analysis and response is provided below regarding the April 19, 2019 letter.

First, the commenter states that our memorandum incorrectly stated that the California Air Resources Board's (CARB's) Composite Wood Products Regulation did not go into effect until 2014, arguing that as of July 1, 2012, all composite wood products had to comply with the Phase 2 emission standards. The Composite Wood Regulation established Phase 1 and Phase 2 emission standards on particleboard, medium density fiberboard, and hardwood plywood (collectively known as composite wood products). As stated on page 6 of our memorandum, as of January 2014, only Phase 2 products are legal for sale in the state. Under the regulation, retailers could legally sell Phase 1 compliant products from their existing inventory through December 31, 2013.

Second, the commenter also suggests that off-gas emissions of formaldehyde is not limited to merely composite wood products. Rather, emissions occur from other residential-related materials and furnishings brought in by future residents. It would be speculative to accurately estimate what kind of materials and furnishings (e.g., brand, year constructed) may be introduced to the units at the project site and any such estimate would be outside the realm of CEQA. CEQA does not require speculation. CEQA Guidelines Section 15145; *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal. 3d 376.

The commenter also argues that the memorandum incorrectly states that all homes included in the 2018 Chan study cited in the commenter's March 24, 2019 correspondence were built in 2011. Because the commenter cited to a conference paper, and not a published article, and did not provide a copy of the referenced paper with the March 24, 2019 comment letter nor a citation which would have allowed to readily find the paper online, it was not possible for us to ascertain which study was being referenced. As a result, we assumed that the reference was to a 2018 formaldehyde study in which the homes were built in 2011. It is assumed that the referenced study was one released in 2019 (referred to as "2019 Chan study"). referring to what we called the 2019 Chan study rather than the 2018 Chan study (because it was formally published in 2019), which was addressed in the prior memorandum.

The 2019 Chan study shows that formaldehyde emissions in homes are continuing to drop rapidly with new construction as homes comply with CARB's Phase 2 requirements. The study identifies that:

“[c]omparisons of indoor formaldehyde, nitrogen dioxide (NO₂), and fine particulate matter (PM_{2.5}) with a prior study of new homes in California (conducted in 2007-08) suggest that contaminant levels are lower in recently built homes. California's regulation to limit formaldehyde emissions from composite wood products appears to have substantially lowered its emission rate and concentration in new homes” (Chan et al. 2019:69).

The 2019 Chan study reviewed single-family homes built between 2011 and 2017 and shows a formaldehyde mean of 19.8, nearly half the 36 level reported in the 2009 study previously cited by the commenter. Further, in the 2019 study, as admitted by commenter, only 70 percent of the houses were constructed in 2014 or later and after the Phase 2 requirements had become law. Thus, emissions from residential units built under the project would be expected to be lower as they will be built with all CARB Phase 2 compliant materials. In addition, our original memorandum identified that the ASHRAE 62.2 ventilation and air filtration requirements in the state's Title 24 Building Code improves indoor air quality, and these standards are scheduled to become more stringent with the adoption of the 2019 Title 24 Building Code that the project would be required to comply. It should also be noted that the project does not contain single-family land uses and the findings identified by the commenter is not directly applicable to the project among other reasons discussed below.

The commenter also argues that “in ‘reality’ most residential occupants rarely open their windows” and do not keep them open often, as addressed in our original memorandum. To support this statement, the commenter relies on the CNHS study of single-family homeowners which apparently found that 32 percent of homes did not use their windows during one day of a formaldehyde test and 15 percent did not use them in the preceding week. That means that 68 percent of the participants did, in fact, use their windows on the one specific day that they were asked about and 85 percent of the homes also did use their windows during the preceding week. These percentages indicate that a majority of residents do open their windows and does not support commenter's statement that the opening of windows is rare. The CNHS study also identified that homes over one story were substantially better ventilated partially due to people being more willing to leave upstairs windows open while the house is unoccupied (CNHS study 2007: 89). The project would consist of multi-story residential units that would have windows above the ground floor.

This information was referenced in our prior memorandum based on the same information used by the commenter, which states that participants in the study related that they generally keep their windows open for hours at a time during spring, summer, and fall. Moreover, prior research showed that self-reported window usage “[i]n summer, fall, and spring, approximately half of the homes [47 percent on average] reported substantial window use [>2 hours per day on average]; but during winter more than half [57 percent] reported not opening their windows at all” (Chan et al. 60). For context, it is important to note the finding of by the commenter that actual window use exceeded seasonal projected use in the sample of homes for which both types of data were available. These data do not support the assertion that “most residential occupants rarely open their windows,” and actually indicates that the majority of occupants often open their windows, for long periods of time, and may underreport actual window usage.

As explained in our prior memorandum, these formaldehyde studies require participants to keep their windows closed for the duration of the study and rely only on mechanical ventilation, creating an atypical situation. The data provided above indicate that a resident who does not open their windows is not the norm. This window usage combined with mechanical ventilation would greatly reduce formaldehyde concentrations in indoor air. Thus, the studies do not accurately capture real-world scenarios. In addition, the studies assume a continuous 24-hour

exposure and 100 percent absorption by the respiratory system, which is an unrealistic assumption as residents are unlikely to stay within the confines of their home for such a continuous duration.

The commenter calculates a risk value based on windows being open more often (equaling less exposure) or residential units being built with Phase 1 compliant materials rather than Phase 2 compliant materials, which would not be the material used in the project as residential units would be built consistent with current CARB's regulation. These estimates include several speculative assumptions regarding project construction and materials, health risk modeling of formaldehyde, and how much ventilation there will be in project residential units. As noted above, CEQA does not require speculation.

The commenter's assertion that formaldehyde constitutes a significant impact is unsupported, and no further analysis or discussion of formaldehyde impacts is required under CEQA. Thus, no further analysis or recirculation is required.

References

California Air Resources Board. No Date. Frequently Asked Questions for Consumers: Composite Wood Products. Available: https://www.arb.ca.gov/toxics/compwood/consumer_faq.pdf. Accessed April 2019.

CARB. See California Air Resources Board.

Chan, W.R., Y-S Kim, B.D. Singer, and I.S. Walker. 2019 (February). Ventilation and Indoor Air Quality in new California Homes with Gas Appliances and Mechanical Ventilation. *Lawrence Berkeley National Lab*, <https://escholarship.org/uc/item/44g399sb>. Accessed April 2019.