

June 26, 2017

California Natural Resources Agency
Sacramento, CA

RE: Comments the 2017 Draft Safeguarding California Plan

Thank you for the opportunity to provide input on the 2017 Draft Safeguarding California Plan (Plan). The Plan summarizes our progress to date, covers many issues, and lays out a fairly comprehensive, integrated approach. It also mentions the issue of adaptation for climate conditions of the future (p. 87, Next Steps).

However, the Plan does not consider this life-cycle issue for the building sector, where design decisions we make now can determine the building's performance for the next 50-100 years. Other countries,¹ cities,² and the USGBC LEED standards³ are already moving toward climate adapted, zero-carbon buildings that avoid overheating during heat waves and are livable during power outages. In addition, the current Passive House design, which the Title 24 net zero energy standards will emulate by 2020, is vulnerable to overheating in hot regions when future climate conditions are not considered.^{4,5} Meanwhile, the U.S. had just had 3 years in a row of record breaking hot weather, and prolonged droughts such as California just experienced will exacerbate the warming of our climate.

In order to adapt to climate change in California, the California Climate Action Team (CAT, 2013) included the following recommended actions in their report, [Preparing California for Extreme Heat: Guidance and Recommendations](#) (emphasis added):

- a) Review and incorporate changes as appropriate, to state and local regulations, codes and industry practices for buildings, land use and design elements to identify opportunities to **accelerate the adoption of cooling strategies for both indoor and outdoor environments** (p. 10, Recommendation 1); and
- b) Evaluate strategies that could **provide protection against heat and air pollution to vulnerable populations that are not based on energy intensive air conditioning** (p. 17, Recommendation 4).

¹ Several project in the UK's [ARCC Network](#) focus on adaptation of existing or new construction to overheating and other climate change risks.

² For example: New York City has drafted [Climate Resiliency Design Guidelines](#) for climate adaptation of municipal buildings. Compliance would be recommended for developers as well.

³ [LEED Resilient Design Pilot Credits](#), 2015 (update is currently in process).

⁴ McLeod et al., 2013. [An Investigation Into Future Performance And Overheating Risks In Passivhaus Dwellings](#). *Building and Environment* 70: 189-209.

⁵ Vogiatzi and Perlsmakers, 2015. [The PassivHaus Standard: minimising overheating risk in a changing climate](#).

The update of the Plan, and the Title 24 building energy efficiency standards, are a golden opportunity to finally implement these recommendations in the building and urban planning sectors. Therefore, I strongly recommend that California implement these recommendations aggressively in new and retrofit buildings so that they are adapted to extreme heat, urban heat island effects, and in some regions, increased humidity, that we can expect over the course of this century. The resultant level of energy efficiency will also help reduce the need for energy storage and power during peak demand, especially from fossil fuel combustion.

We can at least start implementing CAT recommendations with State and University buildings, and promote the planning for adaptation measures in other building sectors.

I have also attached for your consideration some pertinent information: my previous submittals to the CEC and CARB, and a recent presentation on healthy, sustainable buildings this issue in other forums. These documents provide details and examples of what has and can be done to adapt buildings for extreme heat under current and future climate conditions, and to optimize co-benefits from energy efficient building programs.

Sincerely,
Thomas J. Phillips
Healthy Building Research
Davis, CA

Attachments:

Comments on CARB Scoping Plan update and CEC Title 24 update.

Presentation at Beyond Energy Efficiency, May 18, 2017. Built It Green conference.