

May 13, 2022

NYSERDA
17 Columbia Circle
Albany, NY 12203-6399
Submitted via email: scopingplan@nyserda.ny.gov

RE: Climate Action Council Draft Scoping Plan

Dear Sir/Madam:

On behalf of SUNY College of Environmental Science and Forestry, we are submitting comments in response to the Climate Action Council Draft Scoping Plan published on January 1, 2022 to inform the Council of additional research regarding developing incentives for Passive Building methods in new construction.

Chapter 12: Buildings

Section 12.2: Key Sector Strategies; B1. Adopt Advanced Codes for Highly Efficient, All-Electric, and Resilient New Construction

1. Key sector strategy B1 discusses the theme of adopting zero-emission codes in buildings. In this theme, the strategies rely on technology, even for new constructions; however, some methods don't need new technology and can reduce energy consumption in buildings. **The state can encourage developers to use these techniques in new building constructions, like passive heating and cooling and ventilation building design. The main idea is to lower the energy it takes to keep buildings comfortable. Designing passively means working with external weather conditions instead of fighting against them.** For instance, building orientation and other features can be designed to capture the sun's heat in cold times and avoid hot ones. Unlike active systems, passive systems do not involve substantial use of electrical and mechanical devices, such as fans and pumps. Instead of relying on an efficient active method, buildings can be built to use summer wind and ventilation for cooling. For winter, having windows on the south side of buildings can help buildings warm quickly on sunny days.
2. Multiple studies have calculated and established the energy savings benefits of passive buildings. Schulze and Eicker (2013)¹ found that passive cooling methods with natural ventilation in office buildings under different climate conditions have saved 13 to 44 kWh/m². In another research, Oropeza-Perez (2019)² compared annual energy consumption using different passive cooling and heating methods and no passive techniques, and found considerable savings. Climate Resiliency Design Guidelines³ by NYC Mayor's Office further emphasizes that:

¹ Schulze, T., and Eicker, U. (2013). Controlled natural ventilation for energy efficient buildings. *Energy Build.* 56, 221–232. doi: 10.1016/j.enbuild.2012.07.044

² Oropeza-Perez Ivan (2019) *Buildings* 2019, 9(11), 224; <https://doi.org/10.3390/buildings9110224>

³ https://www1.nyc.gov/assets/orr/pdf/NYC_Climate_Resiliency_Design_Guidelines_v4-0.pdf

“Designing for increasing heat does not need to equate with upsizing system capacity. Passive options can be employed to achieve heat resilient design and energy efficiency goals. Passive solar cooling and ventilation: numerous design features provide passive solar cooling for buildings to help maintain lower internal ambient temperatures with less air conditioning. These features also help keep facilities habitable during extended electrical grid failures when generators fail or must be reserved for critical functions. Some design features include, but are not limited to: appropriate east-west orientation; passive ventilation design; passive daylighting solutions; vertically stacked double-skin facades. exterior window shades (retractable to not lose beneficial solar heat gain in winter); light-colored exteriors; shaded arcades; thermally massive materials; high-performance glazing; operable windows.”

Given these proven efficiencies of passive building methods, we recommend that New York State design incentives and tax credits that encourage the uptake of passive building methods in new construction. Both NREL⁴ and US DOE⁵ also highlight the benefits of passive solar design as a strategy to minimize energy use through the use of following elements: aperture, thermal mass, distribution, and control.

3. In addition to designing incentives for passive buildings in the state overall, **we recommend that New York State provide extra credits to the passive buildings designed in areas with disadvantaged communities.**

Thank you for the opportunity to comment on Climate Action Council Draft Scoping Plan. Please take this research into consideration when constructing adjustments for the final scoping plan.

Sincerely,

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⁴ <https://www.nrel.gov/research/re-passive-solar.html>

⁵ <https://www.energy.gov/energysaver/passive-solar-home-design>