UCLA Luskin Center for Innovation

POLICY BRIEF | JULY 2022

Protecting Californians with Heat-Resilient Homes

GUIDANCE FOR AN EQUITABLE AND EFFECTIVE STATE STRATEGY

Housing policy is climate policy, with health and equity consequences.

California housing is unprepared for extreme heat today and future increases in duration and intensity expected under climate change.[1] This presents an urgent problem for health and safety in our homes. Residents spend more time at home than any other setting.[2] This is especially true for populations particularly sensitive to heat, including infants, children and seniors.

Health Impacts of Heat: The NOAA National Weather Service **Heat Index** determines heat risk based on air temperature and relative humidity to provide a measure of how hot it feels and the dangers to human health those conditions pose.[3] Prolonged exposure to excessively hot conditions can lead to heat exhaustion and heat stroke, with symptoms including nausea, headache and fainting.[4] People with chronic health conditions, such as cardiovascular disease and obesity, face greater challenges to regulating core body temperature and reducing heat-induced stress.[5,6]

Heat and Homes in California: Access to cooling can be essential to prevent heat exhaustion, heat stroke and death. Yet approximately 20 percent of owner-occupied units and 29 percent of rental units in California are not equipped with central or room air conditioners.[7] Even for those who do have access to air conditioning, low-income households may be forced to choose between cooling their homes or paying for other necessary expenses. Older and substandard structures, where low-income residents are more likely to reside, tend to have lower thermal performance, leading to greater electricity costs.[8] Renters are also less likely to have energy-efficient installations.[9]

Heat Inequities: Under climate change, all Californians face increased risk from heat-related illness and injury. But communities and populations affected by systemic poverty and racism are most likely to lack indoor cooling and other protections against extreme heat.[10] This is especially true for California's unhoused residents, mobile home residents and farmworker communities, three populations that slip through the cracks in regulatory protections.

Summary of Recommendations

We recommend the following interconnected actions to protect Californians where they live:

- Update habitability standards and residential building codes for a hotter future
- Bolster funding for the installation and use of home cooling strategies
- Address policy and programming gaps to protect the most heat-vulnerable populations


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Homes and built environments across California will require greater adaptation to extreme heat to protect residents' health, particularly for highly exposed populations.

State Action: As the state continues to develop strategies to adapt to a changing climate, a focus on equity and where people live will be critical to ensure all Californians are protected. **California's Extreme Heat Action Plan**, released in April 2022, outlines several important actions, both existing and proposed. Given this momentum at the state level, including recent legislative and budgetary proposals, this brief seeks to inform actions for more heat-resilient homes and healthy households. The following recommendations build on findings from our 2021 report, ***Adapting to Extreme Heat in California: Assessing Gaps in State-level Policies & Funding Opportunities***, as well as other research and insights from community organizations and other stakeholders.

Types of Cooling

Two main types of cooling strategies exist – active and passive.

Active cooling installations use energy to quickly cool indoor spaces, such as air conditioning and energy-efficient cooling options (e.g., split electric heat pumps). Active cooling can provide life-saving benefits directly to residents experiencing high heat and humidity burdens.

Passive cooling refers to building design (e.g. cool roofs, insulation and reflective window films) and landscape elements (e.g. nearby trees and shade structures) that can help regulate indoor temperatures without requiring energy.

RECOMMENDATION AREA 1

Update habitability standards and residential building codes for a hotter future

Status Quo: California's homes are unprepared for extreme heat, presenting a need to update state law and building codes. Until the introduction of the California Building Standards Code (Title 24) in 1978, a dispersed set of residential building standards led to uneven design and construction across the state.[11] In fact, a majority (60 percent) of housing units in California were built before 1979[12] and thus likely lack design, technology and thermal performance elements to protect occupants from extreme heat. Tenants are particularly vulnerable to extreme heat. The ability to upgrade rental units for improved interior cooling lies primarily with property owners, and currently, there are no requirements for cooling installations in rental units.

California law requires that rental units have the ability to maintain a safe temperature ***minimum***, but not a safe temperature ***maximum***. Specifically, the California Civil Code establishes habitability standards for residential safety, requiring rental units to have heating facilities that are "maintained in good working order" to prevent homes from becoming too cold.[13] In tandem with this habitability standard, the California Health and Safety Code deems rental units that lack adequate heating facilities to be substandard housing.[14]

Missing from these definitions of uninhabitable and substandard is a lack of cooling facilities to prevent homes from becoming ***too hot***.

Moreover, the California Health and Safety Code establishes the State Housing Law to regulate new and remodeled housing (under Title 24) and existing housing (under Title 25).[15] Title 24 of the California Building Standards Code mandates that new and remodeled residential buildings be equipped with active or passive heating strategies capable of maintaining ***minimum*** interior temperatures of 68 degrees Fahrenheit.[16] Similarly, Title 25 mandates that existing rental units be capable of maintaining a ***minimum*** indoor temperature of 70 degrees Fahrenheit.[17] But no parallel requirement exists for ***maximum*** indoor temperatures in any homes.

RECOMMENDATION 1.1

Update the definition of "habitability" to require active and/or passive cooling in rental units

For rental units to be truly habitable, we recommend that the state update the California Civil Code (which defines habitability) and the California Health and Safety Code (which defines substandard living conditions) to require that landlords provide cooling installations to protect tenants from excessive indoor heat. Just as the state considers a lack of heating facilities to be a substandard condition for housing, a lack of active or passive cooling facilities should also be codified as a violation of habitability in order to protect the health and safety of tenants.[18]

RECOMMENDATION 1.2

Update building codes to set maximum temperature limits for new and remodeled housing, and existing rental housing

Alongside an updated definition of habitability, new indoor temperature limits will be crucial to protecting Californians in their homes. The state can establish a maximum indoor temperature limit for existing rental units by amending Title 25 of the California Code of Regulations.[19] The state could also create an indoor temperature limit for new and remodeled homes by revising the California Building Standards Code (Title 24). Taken together, changes to both Title 24 and Title 25 can close key gaps on indoor thermal comfort and safety.

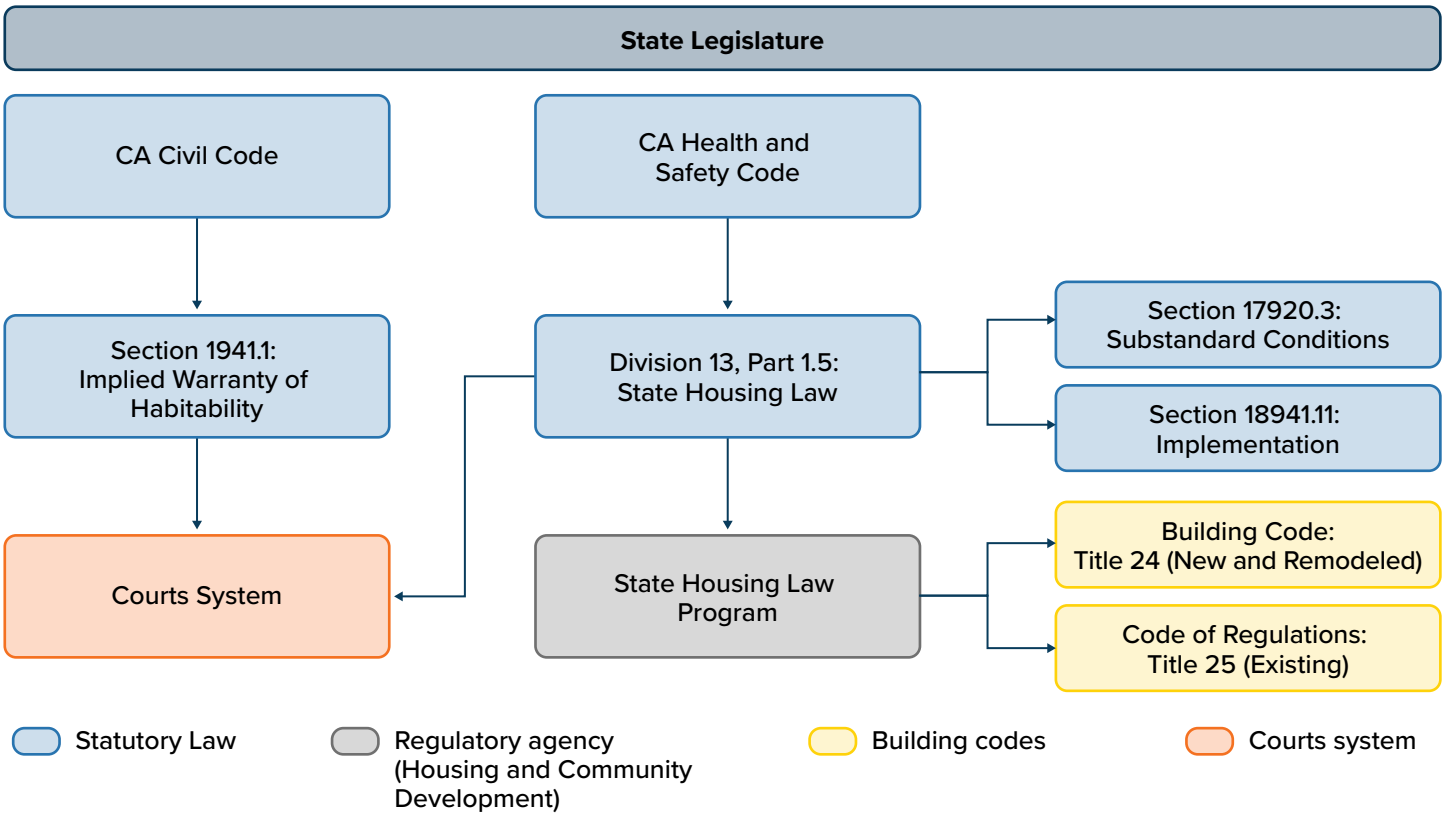
California's Extreme Heat Action Plan includes a recommendation to "explore the feasibility of implementing residential air requirements."[20] The state should learn from precedents that exist at the local level, such as in Palm Springs, California,[21] Phoenix, Arizona[22] and Clark County, Nevada.[23] Any feasibility studies should also look at California's model for licensed Residential Care Facilities for the Elderly (RCFEs) to maintain temperatures at no higher than 85°F indoors. In areas of extreme heat, the state requires elder care facilities to maintain indoor temperatures at least 30°F below outdoor temperatures.[24]

We recommend that the state build upon existing precedents and additional analyses to set a statewide residential temperature limit. This limit should be based on public health criteria and account for the interaction between heat and humidity. The state can also encourage and support local municipalities to set their own maximum temperature requirements. Once a statewide temperature limit is set, any local regulations should need to meet or exceed state codes.

Assembly Bill 2597

AB 2597 (Bloom) provides a starting place for requiring access to safe indoor ambient air temperatures in homes. The bill seeks to amend the California Code of Regulations to address the lack of heat protective standards. The specifics of how the bill will address heat are still being determined through an iterative process; check **the California Legislative Information Website** for the latest version of the bill.

Figure 1. Overview of State Law Affecting Residential Cooling Requirements



RECOMMENDATION AREA 2

Bolster funding for the installation and use of home cooling strategies

Status Quo: Although California's aging housing stock will require critical upgrades to withstand extreme heat, programs and funding to help Californians access cooling strategies in their homes are limited.

Existing programs to improve the energy performance of homes were not explicitly designed to mitigate heat or reduce heat-related risks in homes. Home retrofit programs, including the Low-Income Weatherization Program (LIWP), could be expanded to include more options for cooling. LIWP currently provides funding for low-income households to replace their old air conditioners with more energy-efficient options, but not to install air conditioners in homes that do not already have one.[25] In fact, there is no state program that provides new, non-replacement air conditioners or energy-efficient heat pumps to vulnerable households at no cost.[26]

RECOMMENDATION 2.1

Robustly fund programs to retrofit homes against heat

To transform heat-threatened buildings into heat-resilient homes, we recommend expanding existing and establishing new statewide incentive programs for home retrofits. Access to heat resilience resources should span various housing types, including single-family homes, multi-family dwellings and mobile homes. Robust funding could go toward the following:

- Expand existing weatherization and energy efficiency home retrofit programs to explicitly include cooling strategies, such as cool roofs, solar-reflective walls, shade structures, and — perhaps most importantly — heat pumps (an energy-efficient air conditioner).
- Establish a new home retrofit program explicitly designed to subsidize cooling installations in low-income and heat-vulnerable households. Such a program could also advance the state's energy

efficiency and building decarbonization goals. (See SB 1261 call-out box.)

- Provide retrofit subsidies to landlords with demonstrated financial need, coupled with tenant protections that prohibit rent increases associated with new cooling installations.

RECOMMENDATION 2.2

Help Californians afford to use cooling strategies at home

For many Californians, their health and safety depends on access to air conditioning in their homes. Expanding access to air conditioning means more than providing equipment: it will require ensuring that low-income households can afford to use these life-saving devices over time. High-heat days can result in increased energy use and costs as households run air conditioners to maintain safe indoor temperatures, leading to disproportionate utility costs and debt for Black, Latinx and low-income households.[27] We recommend that the state consider ways to reduce energy costs associated with cooling for California residents, including the following:

- Revise electricity rate structures to better help low-income ratepayers afford to use air conditioners and heat pumps.
- Increase funding for and expand access to energy rate assistance programs, such as California Alternate Rates for Energy.
- Increase funding for and expand access to utility debt relief programs for low-income households.

RECOMMENDATION 2.3

Focus on program access for frontline residents

The populations most vulnerable to extreme heat are often the hardest to reach through government programs. Mistrust of government services can be elevated due to language barriers or immigration status, for example. But trusted local organizations can help ensure that programs and services for heat resilience can reach those who need it the most. By leveraging community representatives who understand local experiences and needs, the state can ensure that underserved households receive high-quality, individualized assistance.

Proven outreach models could be replicated and scaled, including the emPOWER program in Los Angeles County[28] and the Valley Clean Air Now program in the San Joaquín Valley.[29] Both models utilize trusted community groups to conduct outreach to neighbors, centralize information about a range of incentive programs available to low-income households, and help residents enroll in eligible programs that build their financial and climate resilience.

We recommend that the state recruit and fund community organizations to conduct targeted outreach to heat vulnerable populations, with a focus on culturally responsive, multilingual and direct enrollment support. When relevant, we also recommend designing and updating application platforms to streamline eligibility verification and enrollment for statewide home retrofit and energy assistance programs.

Senate Bill 1261

SB 1261 (Stern) would establish a new grant program for extreme heat mitigation and building decarbonization in multifamily dwelling buildings. Grants would be targeted to multifamily building types for affordable upgrades to reduce greenhouse gas emissions and improve comfort and safety for residents. Upgrades can include efficient electric appliances, energy efficiency upgrades, wiring and panel upgrades and cooling technologies (such as heat pumps). The building-level investments to address extreme heat would mitigate the health and economic impacts and help residents stay safe in their homes.

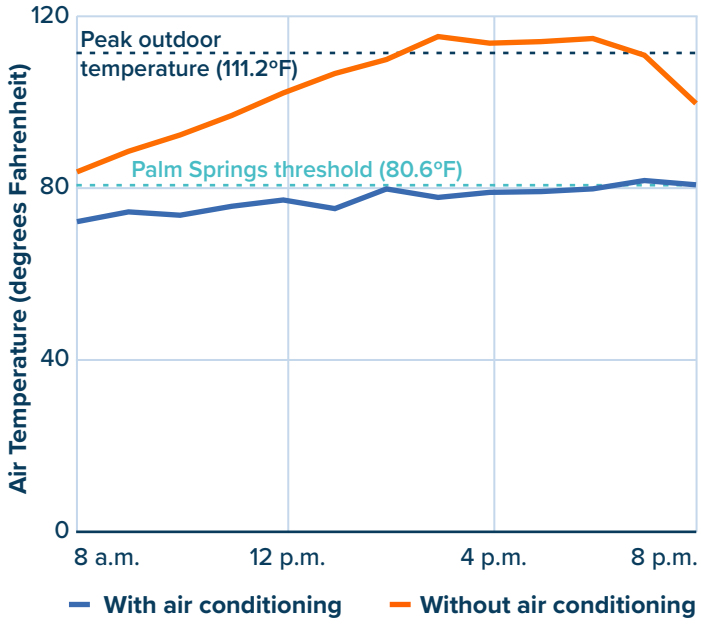
RECOMMENDATION AREA 3

Address policy and programming gaps to protect the most heat-vulnerable residents

Status Quo: California's unhoused populations, mobile home residents and farmworker communities face particular challenges to accessing protections from extreme heat. Without reliable shelter conditions, unhoused residents are exposed to dangerously hot conditions, among other outdoor climate hazards. Residents of manufactured and mobile homes, who tend to be older and lower-income, are particularly vulnerable to extreme indoor heat due their disproportionate concentration in high-heat zones and lack of insulation and cooling.[30] Farmworkers residing in labor camps are exposed to outdoor heat during the day and often return to homes that lack adequate cooling at night,[31] further compounding their risk for heat-related illness.[32]

Many individuals within these populations are not covered by the California Building Standards Code, tenant protections or home retrofit programs, and due to systemic poverty and housing insecurity, face combined obstacles to accessing safe and healthy homes. Air conditioning and other cooling options are particularly critical for these residents. For example, in the East Coachella Valley, mobile homes without A/C often reach internal temperatures far exceeding the local legal limit set, as shown in Figure 2. For California to deliver on its commitment to extreme heat adaptation, these populations will need to be actively included in a statewide approach that not only seeks to protect all Californians, but prioritizes those at the margin.

Figure 2. Mobile homes in East Coachella Valley are too hot by Palm Springs law



Source: Morgan Rogers and V. Kelly Turner (Strategic Growth Council Climate Change Research Grant CCR30017)

RECOMMENDATION 3.1

Research and develop interventions for vulnerable housing types

California's continued efforts to identify and protect heat-vulnerable populations need to consider disparate risks across housing types. We recommend that the state conduct research to assess how heat affects residents living in underregulated housing types, such as mobile homes and farmworker housing. As climate change intensifies, targeted actions will be necessary to protect the health and livelihoods of these residents living on the frontlines of climate risk.

One example of targeted action, **AB 2243** (Garcia, L. Rivas) was introduced to codify workplace heat protections for outdoor employees, such as farmworkers; however, these populations also require ***indoor*** heat protections where they live. To prevent certain residents from falling through the cracks of existing regulations, programs and services, greater care and attention to the needs of these frontline communities will be important as the state implements and updates the Extreme Heat Action Plan.

Installing rooftop solar in Los Angeles. Photo credit: GRID Los Angeles

Prototype cool roof. Photo credit: GRID Alternatives

RECOMMENDATION 3.2

Expand community resilience centers to protect unhoused residents and other community members

As part of the state's historic 2021-2022 State Climate Budget package, the Strategic Growth Council has received $100 million over two years to develop and launch a new Community Resilience Centers (CRCs) Program.[33] We applaud this initial investment in "new construction and upgrades of neighborhood-level resilience centers to provide shelter and resources during climate and other emergencies, such as extreme heat events and poor air quality days." Importantly, the program will also fund "year-round services and ongoing community amenities and programming, such as food distribution and workforce development training, that build overall community resilience."[34]

CRCs hold promise to serve as trusted spaces that meet both daily and emergency needs of residents, especially if they are equipped with a micro-grid to supply backup power, air conditioning and other critical services during power outages. To bolster California's heat resilience infrastructure especially for the most underserved, we recommend that the state next establish a long-term funding and evaluation strategy for CRCs that includes the following elements:

Community-driven: The choice of facility should be community-driven, as residents know best which facilities are trusted and already well-utilized. Options for existing facilities include libraries, schools, health clinics, recreation centers, houses of worship and other buildings open to the public. In some cases, the construction of a new building may be required to meet the extreme heat and climate resilience needs of a community.

Cooperative: Community resilience centers should be planned and implemented as a joint effort between neighborhood residents, community-based organizations and/or local governments in a way that ensures community members are involved in the decision-making.

Evidence-based: Initial investments in CRCs should include investments in evaluation to allow the state to learn from early pilots, identify best practices and facilitate opportunities for effective scaling. For example, researchers could identify best practices of cooperative CRC development involving neighborhood residents, community-based organizations and local governments.

In conclusion, a public health and equity-focused approach to heat management in California would protect all residents with heat-resilient housing and access to community resources.

Authorship

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