
LAND USE PLANNING WORKGROUP MEETING

Meeting Minutes – Tuesday, September 16, 2025



Committee Members Present

Michael Maguire, Governor's Office of Land Use & Climate Innovation
Matt Damon, CAL FIRE, Office of the State Fire Marshal
Tony Marino, Office of Energy Infrastructure Safety
J. Lopez, State Board of Forestry & Fire Protection
Sean McGlynn, League of California Cities (virtual)
Steve Hawks, Insurance Institute for Business & Home Safety
Nick Cammarota, Building Industry Association (virtual)
Deborah Halberstadt, Insurance Commissioner's Office (virtual)

Other Attendees

Tristan Lanza, Department of Housing & Community Development (virtual)
Chris Fano, Office of Land Use & Climate Innovation (virtual)
Justine Masey, California Strategic Growth Council (virtual)
David Eisenberg, Riverside County Fire (virtual)
Martin Hammer (virtual)
Gary Stephen, HeloPod - Denbeste Tanks (virtual)
Jillian Fisher, CAL FIRE
Danh Dao, CAL FIRE
Carrie Lewis, CAL FIRE

1. CALL TO ORDER

A. Welcome

Michael Maguire

The meeting was called to order at 3:05 PM by Michael Maguire.

B. Introductions/Roll Call

A quorum was established with eight committee members present in-person and two attending virtually.

C. Approval of the June 17, 2025, July 15, 2025, and August 19, 2025, Meeting Minutes (Motion Required) – Michael Maguire

Motion: Tony Marino moved to accept the June 17, 2025, meeting minutes; Steve Hawks seconded the motion.

Action: All members voted unanimously to approve the motion.

D. Approval of the September 16, 2025, Agenda (Motion Required) – Michael Maguire

Motion: J. Lopez moved to accept the September 16, 2025, meeting minutes; Matt Damon seconded the motion.

Action: All members voted unanimously to approve the motion.

2. OLD BUSINESS

- A. Reminder of the Library of Wildfire Planning Resources with a continued goal of developing a library of wildfire planning resources to use as a reference for the work of this workgroup moving forward. Workgroup members will continue to have the opportunity to recommend and/or nominate specific wildfire planning documents or resources that the workgroup will assemble and make available to the members and public in an online centralized location.

3. MONTHLY DISCUSSION TOPIC

- A. Presentation: Fire Resistant Earthen Building Materials – Chris Fano, Governor’s Office of Land Use and Climate Innovation, and Justine Massey, Strategic Growth Council
 - 1) A case study in implementing nature-based solutions for housing, fire resilience, and climate co-benefits
- B. Discussion led by Chris Fano, Governor’s Office of Land Use and Climate Innovation, and Justine Massey, Strategic Growth Council

Steve Hawks – From an exterior fire performance perspective, walls have two vulnerabilities, one is the exterior materials igniting and then that fire on the outside of the wall would spread quickly vertically up into the eaves line exposing the eaves, vents, windows and other components of the house that are more vulnerable than the wall itself. The second vulnerability of a wall is the ability for the fire to penetrate through to the occupancy space, directly through the wall. Of the two, the exterior flame spread is the biggest concern from a wildfire perspective, allowing that to enter the building or spread across is and igniting another structure that’s downwind. I don’t fully understand how the relationship of these products with the exterior of the wall material comes together. I believe I heard you say during the presentation that these products are inside the wall or interior of the exterior material? You put a material on the outside of them?

Chris Fano – The wall itself, in the case of adobe, the adobe material is both the structure and could be the finish. Often, they’re finished with a lime or clay plaster. You don’t have a structural frame, in that case, with insulation materials, which have the flame retardants, the entire assembly is a non-combustible material. So, the cob comprises the structure of the wall, the interior of the wall and then you have two layers of plaster on the interior and exterior, both of which have their own fire-resistant properties, creating a monolithic buyer rating. If flame entered through a window, for example, that failed, or through a roof, those joints and interconnections between the roof assembly and the wall assembly need to be well sealed and more study would be needed. Those intersections are an important consideration because the wall is only as strong as its weakest link. In the case of these walls, there’s no point of failure with the exterior fire-rated finish because once it’s inside, the interior is also fire-rated. So, the flame will burn the contents of the home but the entire structure, inside and out, and through the entire length and depth of the wall has the same fire-rating. You’re not working with assemblies with exterior and interior components; the entire assembly has the same rating.

David Eisenberg – It’s a little different with straw bale in that typically you have cement, lime, stucco, lime, earthen plaster. There is a difference there but the fire testing that

we've done that ASTM E119 full-scale test with host stream test showed that what happens over time is that the straw that's exposed to extreme enough heat for long enough chars, and like heavy timber, protects the straw that's behind it. That doesn't mean that there's no damage, but catastrophic failure is far less likely. You have a material that is not a flammable finish material applied directly to the bales and it's close to monolithic. The bales are modules. The construction process includes filling in the gaps that happen at the end of the bales with a cob mix of straw and clay so there's no open-air pathways from the interior to the exterior or vice versa, which is part of why they perform so well thermally, in addition to being more fire resistant. It's a really slow process, like with the cob, the temperature rise at the end of the 2-hour fire test that we did was negligible. A few degrees over 2 hours under an extreme testing. The detailing, with any at the eaves, windows, doors, potential openings where there could be entry of embers or hot gases, it's the same for any of these materials. They won't contribute more fuel load to the fire. They're not going to be a source of additional fuel, which is one of the problems that we see with wood frame construction. It just adds to the problem and roofs have to be dealt with, whatever the wall system is, but these walls perform really well in fires. What we've seen with sort of a domino effect of downwind houses burning - I like to think these houses could be like reinforced dominos that don't fall. They offer additional protection for what's downwind from them.

Chris Fano – In the ASTM E119 test after 2 hours there was only 1 degree of temperature rise on the interior side. The thermal conductivity of these materials that essentially slow heat transfer does create potential for this to be areas of refuge and promote passive survivability but needs further study and that's something we'd be interested in exploring further.

Martin Hammer – All four of these wall systems with the exception of cob or monolithic adobe, which as its name suggests, is monolithic, and so all of the material throughout the wall is highly resistant to fire. The other systems – straw bale, light straw clay, hempcrete, all are finished with a plaster, which itself is resistant to ignition because it's not combustible material. To clarify, regarding the four appendices, three of the four are in the current 2022 CRC. Hempcrete or hemp lime will be in the 2025 CRC which will go into effect in January 2026. All four will be in the 2025 CRC but only one of them, the straw bale appendix, is adopted by Housing and Community Development and has been since the 2016 CRC for mandatory state-wide use. So, three of the four are voluntary for local adoptions – municipal or county adoption, and currently LA and Sonoma County are considering adopting both the hempcrete and the hemp lime appendix, and the cob or monolithic adobe appendix. They can also be used more informally on a case-by-case basis with the local building department or building official. They've all been well vetted through the ICC co-development process and are hoping they can be made more readily available to design for building professionals and homeowners as a very fire-resistant option. Straw bale is already there but we'd really like to see at least hempcrete and hemp lime, which have been fire tested, light straw clay has not been although we more anecdotally know is more fire resistant. But at least those two remove that obstacle of them not being mandatory. Not that they have to be used but that they can be used. Because we're finishing the current code adoption cycle, maybe ahead of the next cycle on some urgent or emergency basis, given the nature of what they provide – fire resistance, which we all know is really important topic for all Californians.

Deborah Halberstadt – Have you observed or encountered obstacles with insurance on this front?

Chris Fano – That's part of our coalition building, is understanding some of the implications, both from a trade, building industry, and insurance perspective. We do want to bring this question into the fold and hopefully through additional testing, working with more interagency partners, we can help to address it.

J. Lopez – Having grown up in an adobe home, the roof assembly was the weak point from the fire point of this. The wall handles perfectly but the roof assembly was an issue so I don't know how that would be part of this or something to consider. The second item that we deal a lot with those homes is moisture. How do you deal with that?

Chris Fano – The roof assembly and the actual kind of composition, there are specific recommendations within the straw bale code in particular about how the assembly should be pulled together. It's another point of study, understanding what the nexus point is and what the best fire-resilient construction will be. It's something that all houses have to deal with but part of the benefit of the wall being so ignition resistant. As you saw in the slides of the Tubbs fire in Sonoma, where the lime plaster had oxidized and turned pink, it actually prevented the flame from spreading up the wall to ignite the underside of the eaves of the roof construction. It's circumstantial in many ways but we're definitely interested in that connection point and how to study what the proper connections will be. As far as moisture, from what we've researched these materials are well-suited for the Mediterranean climate, especially California. Dry desert climates are where you'd often find adobe or rammed earth construction. You do have to consider moisture through the wall, that's why the lime or clay plaster is breathable. You want to make sure that any moisture that does get in has an opportunity to dry, especially to the exterior. Often, in terms of the construction, especially with straw bale, they're often raised off the ground so there's room for any moisture to drain out and evaporate through the exterior. They're not suitable for all climates, a cold, wet climate would probably not be the best application for these materials. Given the extent of California's climate zone being so mild temperate Mediterranean, it's well-suited for the majority of it. More investigation into the best practical applications is important and from a building science perspective, we'll always be considering how to ensure that there's proper drying through the wall. In many cases with hempcrete, the exterior cladding over the infill panel of the hempcrete itself is applied as a rain screen so that there's an air gap, allowing any moisture that gets through to dry properly to the exterior.

Nick Cammorota – Is it correct that straw bale is not required but optional in the code?

Chris Fano – Yes, straw bale is in the residential CRC code as an appendix.

Martin Hammer – The simple answer is no. Yes, straw bale is now an appendix AS in the 2022 CRC. It's an appendix but a mandatory appendix. Not unlike appendix AH. Housing and Community Development adoption for mandatory state-wide use, both the patio appendix, patio covers and straw bale.

Nick Cammorota – You're not saying that every structure or every residence has to use straw bale?

David Eisenberg – The real distinction is that the appendices are not adopted (not just in California but everywhere). When a jurisdiction adopts the body of the code the appendices have to be adopted specifically or they're not part of the code. That doesn't mean you can't reference them, but they're not automatically part of the building code for that jurisdiction. What has happened with the straw bale, patio covers, and tiny house appendix is that the state has adopted them as mandatory for all jurisdictions which means it's like adopting them with the body of the code. That doesn't mean that you have to use them, it just means that every jurisdiction in the state has to accept without having to go through alternative materials, designs and methods to be able to use those appendices.

Justine Massey – So, making it mandatory does not mean that all buildings need to include it but if people want to use this material, then they have to abide by that code. That's what it means by mandatory, that the code is adopted within all these different jurisdictions and individuals don't have to go through a long alternative permit process, they can just follow the code.

4. ROUNDTABLE

A. Due to timing constraints there was no roundtable.

5. PUBLIC COMMENT

A. There was no public comment.

6. UPCOMING MEETING

A. October 21, 2025

3:05-4:00pm

CNRA Building, Room 2-221 or Whitmore Community Center, Whitmore, CA

B. 2025 Meetings:

Every third Tuesday of the month, 3:05-4:00pm

8. MEETING ADJOURNED AT 4:01 PM