



# Public Health Presentation to CDI Smoke Claims Taskforce

June Weintraub, ScD, REHS, Deputy Director for Environmental Health  
November 17, 2025

# Outline

- **Public health perspective**
- **Presence  $\neq$  Exposure  $\neq$  Health Impact**
- **Value and caveats of testing**
- **Recommendations**

# Potential health impacts of wildfire - During

- Acute and high intensity exposures
- Principally from inhalation during evacuation or shelter-in-place
- Interaction with fire and debris



Image Jan 10, 2025 at 10 am from [Smoke Streams from Palisades and Eaton Fires](#)

# Potential health impacts of wildfire - After

- Health effects of displacement and trauma response
- Debris cleanup – fugitive dust, road dust
- Smoke, ash and char deposits outside and inside



<https://www.nbcnews.com/news/us-news/los-angeles-wildfire-emergency-shelters-evacuees-community-rcna187050>



[https://www.army.mil/article/282943/us\\_army\\_corps\\_of\\_engineers\\_begins\\_phase\\_2\\_of\\_debris\\_removal\\_in\\_los\\_angeles\\_wildfire\\_recovery](https://www.army.mil/article/282943/us_army_corps_of_engineers_begins_phase_2_of_debris_removal_in_los_angeles_wildfire_recovery)

# Wildfire Smoke Composition

- Biomass combustion (e.g., vegetation/wood), burned structures, and burned vehicles all emit particles into the air
  - Coarse particles (PM10) (Ash/soot)
  - Fine particles (PM2.5) (Soot/organic matter)
  - Ultrafine/nano particles (UFP <math><0.1 \mu\text{m}</math>)
  - Gaseous pollutants – carbon dioxide, carbon monoxide, nitrogen oxides, formaldehyde, benzene
  - Volatile organic compounds (VOCs)
  - Metals
- Fuels and burn conditions can impact both the composition and toxicity of smoke emissions
  - Vegetation type
  - Moisture/Wind/Temperature
  - Flaming vs. smoldering
  - Soil composition
  - Burned structure and vehicle types



US EPA, IQAir

# Other smoke damage variables

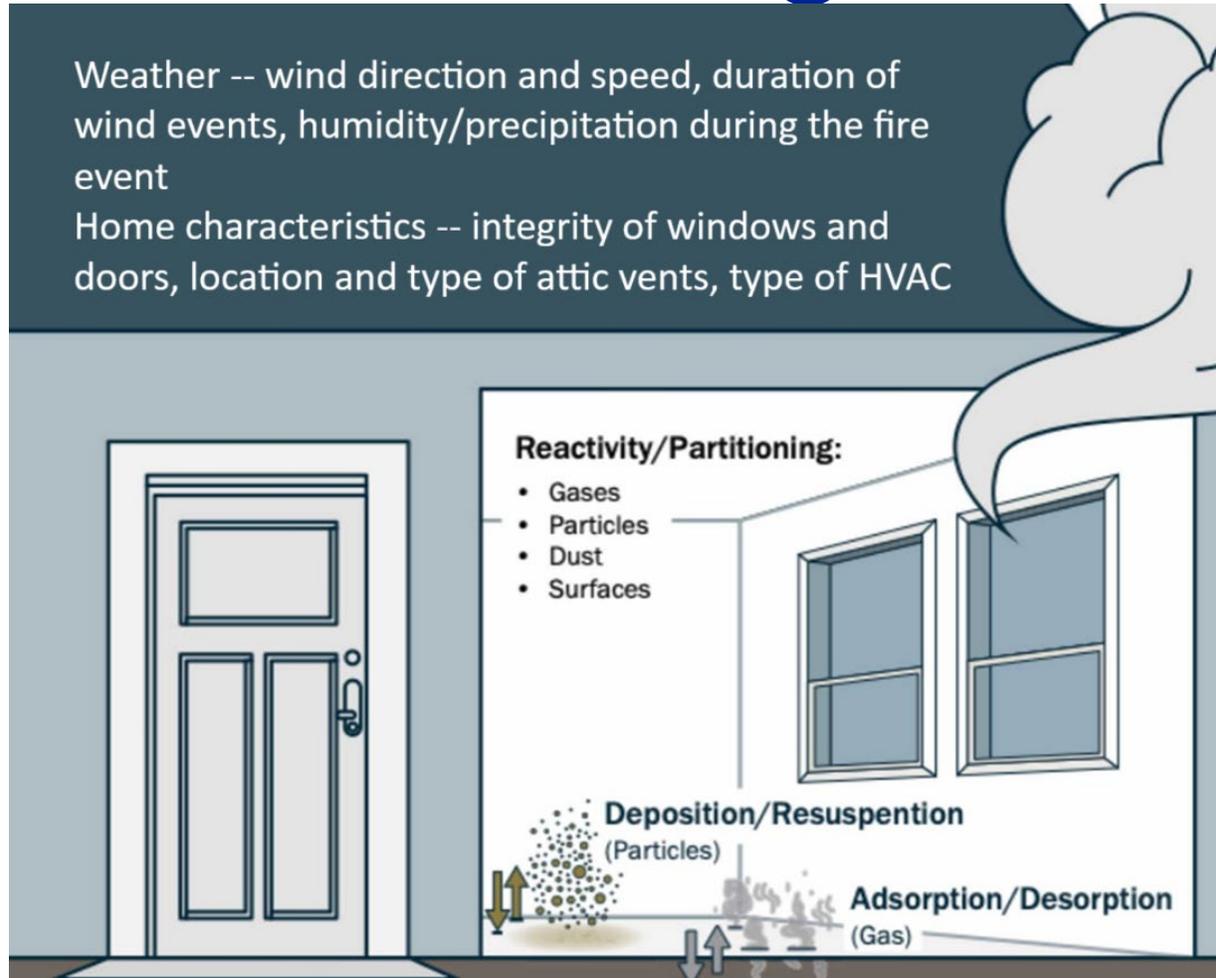
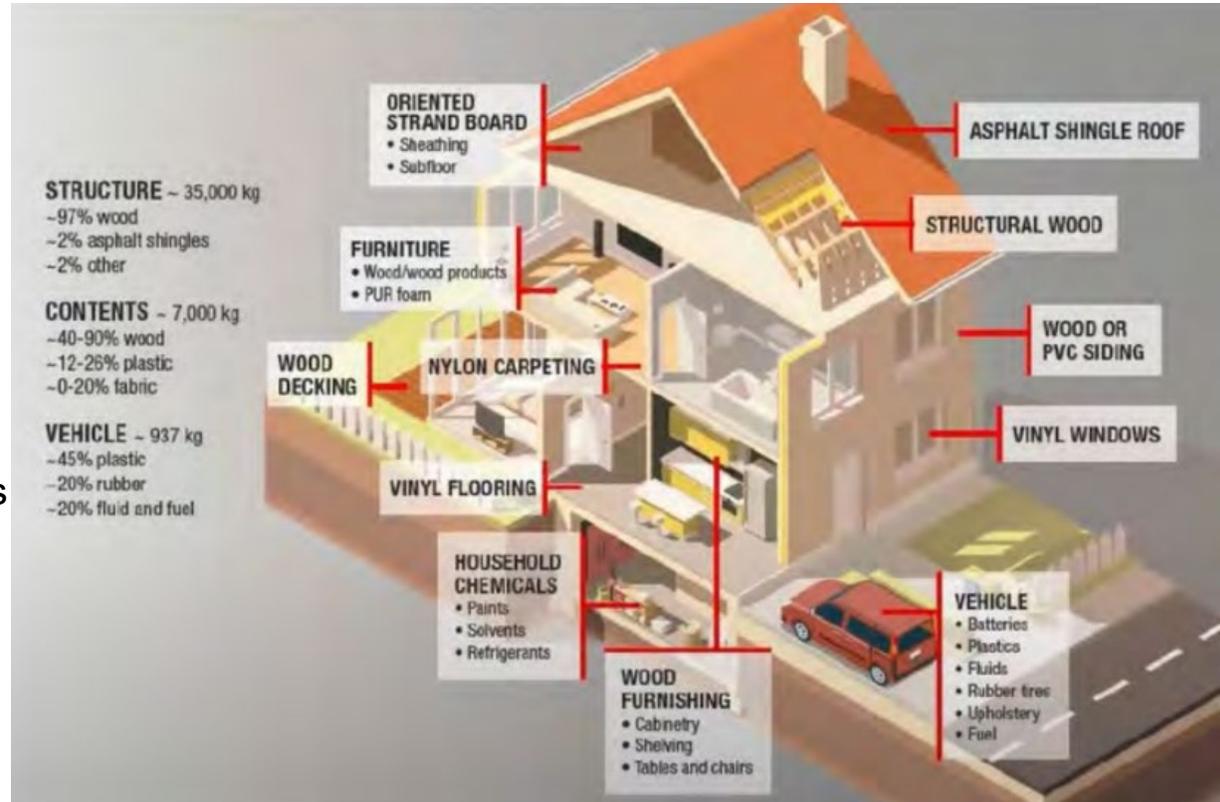


Image credit: <https://www.sciencedirect.com/science/article/pii/S2950362025000414>

# Smoke damage indoors

- Wildfire smoke may contain combustion products from burnt vegetation, building materials, vehicles, household products
- Deposited as ash, soot or char
  - May be oily or sticky – dry or wet wiping may not be sufficient
  - Do not passively dissipate
  - Collects on HVAC filters
- In urban environments, ash, soot and char deposited indoors may contain:
  - lead and other heavy metals
  - asbestos
  - polycyclic aromatic hydrocarbons and other volatile organic chemicals



Averett et al. (2024)

# Exposure to smoke damage

Presence ≠ Exposure

Exposure can occur:

- Hand-to-mouth activity
- Dermal exposure
- Inhalation
- Eyes, nose, and throat irritant

# Exposure ≠ Health Impact

*Our current understanding of the health burden of chronic exposures to wildfire smoke pollutants is limited, due to lack of measurements over time, and difficulties in studying attributable health impacts from those exposures.*

*Destailats and Chan in [Remediation of indoor environments impacted by wildfire smoke: A review of available information and research needs](#) (July 2025)*

- While there are gaps in our understanding of the long-term impact on the indoor environment from residual fire-related contaminants, exposure attributable to smoke damage may be limited by several factors including:
  - Contaminated surfaces are easier to clean than, for example, deeply contaminated soils
  - Limited exposure event (not continuous like ongoing crumbling paint)
  - Volatile chemicals tend to dissipate over time
- Proper cleaning and ventilation reduce potential risk of long term health effects.

# Value of testing

- Can provide a benchmark to determine efficacy of remediation
- Supports decisions on protective measures for workers doing the abatement or cleaning
- Should not be used in isolation to determine importance or efficacy of cleaning

# Limitations of testing to demonstrate smoke impacts

- Few appropriate testing standards exist for smoke chemicals inside residences
- PAHs & VOCs can be present at trace levels in air or surfaces
  - Consensus on health-based levels in non-occupational settings?
- Contaminants of Potential Concern (COPC) are variable (due to, for example, materials, burn temperature, etc.) so not possible to define "typical" contamination
- Not a standard practice for other indoor contaminants – e.g. current cleanup guidance recommends prompt mold remediation when visible growth or musty odors are present - not waiting for confirmatory testing
- Detection of substance does not indicate magnitude within the home
- Often unknown background levels, unable to discern whether levels were present prior to or as a result of the fire

# Recommendations -- Testing

Testing should only be done after considering:

- Availability of standard testing methods in the tested matrix
- Action levels, if available
  - Established criteria for health protective target levels
  - Evidence for health benefit of reaching target levels
- Utility of testing to demonstrate efficacy of remediation

# Public Health Approach to Policy Recommendations

- Strength of evidence
  - Linkage to health outcome
  - Cost effectiveness of recommendation; opportunity cost
- Credibility
- Unintended consequences of recommendation
- Precautionary Principle -- risk of inaction or inadequate action in setting of inadequate data

# Additional Recommendations

- Public health research should be encouraged to fill in knowledge gaps --identify key “tracers” or “surrogates”, persistence of VOCs, health impacts
- Develop best practices for
  - HEPA vacuuming
  - Surface wiping protocols
  - Carpet and porous material replacement
  - Professional HVAC cleaning
- Useful references:
  - [Wildfire planning](#) and [fire recovery guidance](#)
  - [Indoor air quality resources](#) and [asbestos resources](#) on risks and recommended actions supporting federal rules for demolition & renovation

