CACEO board shall develop and maintain standards for the various classes of Certified Code Enforcement Officers (CCEOs) that it designates

1600 MEMBERS est 3000 + CEOs
Chris Lee
Lead Safety and Healthy Homes Coordinator
City of San Diego

CACEO 2019 Annual Seminar

Sacramento Fire Department

Oct 15, 2019

California Association of Counties

OCEA

Code Enforcement Officers

Because even 1st Responders sometimes need 1st Responders

© LWB
Presentation Overview

1. Background Info
2. Asthma, Mold and Code Enforcement
3. Break
4. Hands On Demonstration of Mold Detection Equipment
5. Lead Poisoning, Lead Hazards Code Enforcement
6. Hands on Demonstration of Lead Detection Equipment
7. Questions
Established 1992

Interventions resulted in 60% reduction in asthma-related hospitalizations

Asthma triggers and/or lead hazards remediated in more than 2700 homes

Programming includes expertise in environmental health, public health, construction

Lead Poisoning Prevention

ALAMEDA COUNTY

Healthy Homes Department
"Our Vision is that every person in Alameda County will live in a safe and healthy home."

The Alameda County Healthy Homes Department provides innovative, multi-disciplinary programs that offer Env Investigations, consultations, nurse case management, technical assistance, HUD grants Lead Safety Training and other services to prevent lead poisoning and promote health and safety in the home.
The discovery of gold generated the bulk of lawlessness that made the West wild and the Colt six-shooter often more powerful than any law book stored on a shelf. Between 1850 and 1890, approximately 20,000 men were killed in gunfights, an all-too-frequent method for settling disputes. Sheriffs could at-will declare a renegade desperado as “bearing the wolf’s head,” thereby granting permission to kill on sight as they would a wild animal. Translation: Wanted Dead or Alive, legal rights optional. Sheriffs were usually elected to office, although occasionally appointed. Previous law enforcement experience was not required, but both job and life depended heavily on being a quick study. Entrusted to tackle vice and all manifestations of disorder, the frontier sheriff relied on personal prowess, gut instinct, steady nerves, and recurrent strokes of ingenuity. He also had to be amply skilled with a sidearm, proficient with horses, and able to round up a posse in swift fashion. Some were certainly more capable than others, and more than a few succumbed to bribery and other corrupt enticements. Still, history attests the majority stood firm and stalwart in their oaths to protect and serve. In the latter half of the nineteenth century, these often forgotten lawmen served at the forefront of converting unruly encampments into civilized municipalities. With constantly evolving duties, they fought and cajoled, jailed and punished, sacrificed and bled for the common good. And some, like Tom Logan, lost their lives in the line of duty.
CODE ENFORCEMENT ORIGINS

Tom Logan's saloon, "The American," Main Street and Brougher Avenue, Tonopah, Nevada - c. 1905
The Link Between Housing & Health

“The connection between health and the dwelling of the population is one of the most important that exists”.

Florence Nightingale
1820–1910

What is Healthy Housing?

According to the Centers for Disease Control (CDC)

• A “healthy home” is one that is sited, designed, built, renovated, and maintained to support health

• (A system of) Seven (7) principles which when taken together is a coordinated, comprehensive, and holistic approach to preventing diseases and injuries that result from housing-related hazards and deficiencies
8 Healthy Homes Principles

Keep It:

1. Dry
2. Clean
3. Ventilated
4. Pest-Free
5. Safe
6. Contaminant-Free
7. Maintained
8. Thermally Controlled
<table>
<thead>
<tr>
<th>Housing</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Dampness</td>
<td>Asthma</td>
</tr>
<tr>
<td>• Pest Infestation</td>
<td>Allergies</td>
</tr>
<tr>
<td>• Ventilation</td>
<td>Diseases</td>
</tr>
<tr>
<td>• Contaminates</td>
<td>Poisonings</td>
</tr>
<tr>
<td>• Maintained</td>
<td>Injury</td>
</tr>
</tbody>
</table>
### BEHAVIOR vs. STRUCTURE

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupant activity</td>
<td>Owner building maintenance</td>
</tr>
<tr>
<td>Opening window</td>
<td>Installing or maintaining exhaust fan</td>
</tr>
<tr>
<td>Using exhaust fan</td>
<td></td>
</tr>
<tr>
<td>Wiping up spills</td>
<td>Fix plumbing leaks</td>
</tr>
<tr>
<td>Drying areas of condensation</td>
<td>Installing double-paned windows</td>
</tr>
<tr>
<td></td>
<td>Performing weather-stripping</td>
</tr>
</tbody>
</table>
Potential complications of asthma during PREGNANCY

- High blood pressure and pre-eclampsia
- Premature birth
- Low infant birth weight
Age-Adjusted Asthma Deaths per 1,000,000 California Residents by Race/Ethnicity, 2003-2009 Aggregated

Race/Ethnicity: Black, Pacific Islander, Asian, White, Hispanic, AI/AN

Data Source: CDPH Office of Health Information Research
Page 161 of full report
Age-Adjusted Asthma Deaths per 1,000,000 California Residents by Sex and Age, 2005-2009 Aggregated

Data Source: CDPH Office of Health Information Research

Page 163 of full report
Age-Adjusted Asthma Hospitalizations per 10,000 California Residents by Sex and Age, 2010

Data Source: OSHPD

Page 133 of full report
Average Charge per Asthma Hospitalization, California 1995-2010

Data Source: OSHPD

Page 137 of full report
Mold Sickness
(Chronic Inflammatory Response Syndrome)
Mycotoxins
Mycobacterium
Inflammagens
Volatile Organic Compounds

Water Leaks
Flooding
Old House Syndrome
Improper Ventilation
Odd Odors
Attics, Basements
Hidden mold areas
WHAT IS BUILDING SCIENCE?

- Architecture
- Engineering
- Physics
- Chemistry
- Biology
- Ecology
Buildings are environmental separators*
• Separates the outside from the inside
• Controls the flow of heat
• Controls airflow
• Controls the flow of water vapor
• Controls against the entry and discharge of rain
• Controls against ground water entry
• Controls the quantity of light and solar radiation that enters.

Source: City of Fremont, Leonard Powell, J.D. author
https://www.epa.gov/mold/interactive-mold-house-tour
Fungi live by decomposing and absorbing the organic material in which they grow.

What is Mold?

Mold is a Fungi
Mold spores: The reproductive cells of fungi
Only visible in groups

A breeze, cleaning mold, or doing mold remediation can send billions of spores into the air.
Mold Growth Conditions

• Mold needs a moisture source to grow
• Any organic material can serve as a food source.
• Housekeeping conditions can be significant contributing factor to mold growth.
• If the water source is eliminated, spores go dormant, but mold will grow again in the right conditions (moisture)
Sources of Moisture

Bulk Moisture: Water - Liquid

- Building Shell Leaks
- Window and Door Defects
- Plumbing Leaks
- Drainage Problems

Other Sources – Humidity / Vapor

- Appliance Malfunction
- Crawlspace
- Cooking
- Bathing
- People
- Plants
Sources of Moisture

Concrete Foundation
Can wick moisture like a sponge...

- Overhang protects the ground around the foundation from getting saturated
- Down spouts carry rainwater from the roof away from the foundation
- Capillary break under plate
- Polyethylene vapor diffusion retarder in direct contact with concrete slab
- Ground slopes away from the foundation
- Granular drainage pad (coarse gravel, no fines)
  - Keep rain water away from the foundation perimeter
Sources of Moisture

Unvented Combustion Appliances

- Cooking Or Heating Appliances
- Unvented Heaters
Sources of Moisture

Lack of air movement by mechanical ventilation systems

• Smoke Test
• Paper Test
Sources of Moisture

Improper Venting

- Water Heater
- Dryer Vent
Sources of Moisture

Condensation at Common Cooler Areas

• Windows & Framing Members

• Missing Insulation
Condensation and Relative Humidity

Water that collects as droplets on a cold surface when humid air is in contact with it.
Laboratory Testing

- Laboratory testing is **not** recommended, but can be done to help identify the mold.
- The type of mold does not matter in most cases.
- All mold can be potential allergens.
Identifying Mold

Know it when you see it

- Mold can be identified visually, and comes in several colors not just black.
- Look for spots in areas of high humidity or water damage.
- Musty odors are indicative of actively growing microbial life.
Identifying Mold

Hidden Mold
Identifying Mold
Sometime mold can look like mushrooms or thick mats of rot.

Wood rot is a type of mold.
Remediation

When to hire professionals

- Need to Contain Spores?
- Health concerns / Sewage?
- >10 Sq. Ft.


www.epa.gov/mold
Remediation

www.cdph.ca.gov/programs/IAQ
www.epa.gov/mold
Remediation

Personal Protection

- N95 Respirators
- Closed goggles
- Rubber gloves
- Coveralls
Remediation

Porous Material

• Discard porous contaminated material
• Remove affected wall material and deteriorated components as needed
• Bag / wrap components before they leave the work area.
Remediation

Non-Porous Material

- Clean contaminated material with mild detergent and hot water
- Do not use high pressure sprayers
- Speed dry completely
- Dry before sealing walls or painting
SB: 655 – Added to CCC

§1941.7. Presence of mold

“(b) A landlord may enter a dwelling unit to repair a dilapidation relating to the presence of mold
California Civil Code

1954: Provisions by which a landlord may enter a dwelling unit, which includes making “necessary or agreed repairs”

1941.1(a): Dwellings are deemed untenantable if as described in Section 17920.3 or 17920.10 of the Health and Safety Code.
§1941.7. Presence of mold
“(a) An obligation shall not arise under Section 1941 or 1942 to repair a dilapidation relating to the presence of mold ...until the lessor has notice of the dilapidation or if the tenant is in violation of Section 1941.2.”
CACEO Recommends

INSPECTION TOOLS

• Hygrometer
• Moisture meter
• Infrared thermometers
• Thermal imaging
• Digital cameras
Identifying Mold

Testing Equipment

• A Moisture Meter will determine moisture levels of building materials.
• A Hygrometer will determine if you have elevated humidity levels.
• Many meters do both functions.
CACEO Recommends

REPORTING and DOCUMENTATION

Source: City of Fremont, Leonard Powell, J.D. author
CACEO Recommends

REPORTING and DOCUMENTATION

Source: Copy obtained from City of Fremont, Leonard Powell, J.D. author and CACEO member
**Fremont Community Preservation Mold Assessment Form**

- **Date:**
- **Inspection:**
- **Address:**

**Building Type:**
- SFDC
- Multi-Family
- Condo
- Floor:

- **Occupant Name:**
- **Occupant Phone Number:**
- **Email:**

**Room Type:** Fill in the bubble for the type of room you are assessing.
- [ ] Bedroom
- [ ] Hallway
- [ ] Kitchen
- [ ] Storage/Closet Area
- [ ] Entrance Area
- [ ] Stairwell
- [ ] Garage
- [ ] Office
- [ ] Dining Area
- [ ] Bedroom
- [ ] Other:

- Was the “Mold & Moisture in my Home” Document Provided to Occupant?  
  Yes [ ] No [ ]

**MOLD ODOR:** Be sure to smell for mold odor when you first walk into the room/area. *Fill in the appropriate bubble(s).*

- [ ] NONE
- [ ] MILD
- [ ] MODERATE
- [ ] STRONG
- [ ] Source of MOLD ODOR:
- [ ] Source Unknown

### Room/Area

<table>
<thead>
<tr>
<th>Room/Area</th>
<th>Mold?</th>
<th>Damage/Stats Visible Mold</th>
<th>Water/Damp</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furnishings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scores: ①= None/De Minimis  ②= Less than 10 square feet  ③= Between 10 and 100 square feet  ④= Greater than 100 square feet
These walls don’t just look good.
They’re Yummy Too!

New Flavored Lead-Based Paint and Varnish

Great Flavors!
Pistacio (Shown)
Cotton Candy
Lemon
Marshmellow
LEAD EXPOSURE

• Swallowing or breathing lead dust

• Small amounts can be toxic

• Often no symptoms

• 8,464 children <21 in California with BLL’s of 4.5 or greater in 2015

No known safe level of lead in the body
Lead’s Effects on Babies and Young Children

• Can damage the brain and the nervous system
• Can cause behavior and learning problems
• Can reduce muscle and bone growth
• Can damage hearing
• Can cause death

Even children who seem healthy may have high levels of lead
Too much lead in your body can:
- Put you at risk of miscarriage
- Cause your baby to be born too early or too small
- Hurt your baby’s brain, kidneys, and nervous system
- Cause your child to have learning or behavior problems

Lead can be found in:
- Paint and dust in older homes, especially dust from renovation or repairs
- Candy, make up, glazed pots, and medicine made in other countries
- Work like construction or metalwork

Lead poisoning can happen from breathing in or swallowing lead.
IMPACT ON SOCIETY

• Even small amounts of lead in the blood can reduce math, reading, reasoning, and short-term memory abilities.

• An estimated 20-30% of urban special ed. students suffer from lead poisoning.

• A lead poisoned child is:
  • Six times more likely to suffer from a reading disability
  • Seven times more likely to drop out of high school
2 main routes of exposure to lead

- **Inhalation** of fine particles and fumes e.g. from sanding or burning lead paint
  
  ![Image of radiograph showing lead paint chips in gut](reference)

- **Ingestion** of dust and paint chips
  
  - Children with pica are at particularly high risk
  
  - Picture is a radiograph of a child with lead poisoning from eating lead paint, showing paint chips dispersed throughout the gut

---

Small IQ reduction has significant societal impact (1)

![Distribution of IQ Scores in US Children](reference)

- Little Things Matter
- Distribution of IQ Scores in US Children
- Mean IQ = 100
- IQ 70
- IQ 130
- 6 Million
- Most of us
- Gifted

References:

- Reference B.i.1
- Reference B.i.4
Lead is a multi-system toxicant

- Brain & nervous system damage
- Decreased IQ
- Hearing problems
- Learning difficulties
- Muscle & joint pain
- Speech, language and behaviour problems
- Anaemia
- Slow or reduced growth
- Kidney damage
- High blood pressure
- Digestive problems
- Reproductive problems (adults)
Lead Hazard Enforcement

1) Substandard Housing
   • Pre 1978 with deteriorated paint contaminated dust or soil

2) Unsafe Work Practices
   • Pre 1978 without containment
Regulatory Background

Substandard Housing

**HSC 17920.10:** Deteriorated LBP ...as defined in Title 17 – “and that are likely to endanger the health ... as a result of their proximity to the public or the occupants.”

**Department of Housing and Community Development information bulletin 2003-05:** The focus is general “proximity”... not whether there is “enough lead” in the paint or dust to endanger the residents or public.

**Title 17, §35022. “Deteriorated Lead-Based Paint”:** “Lead-based paint or presumed lead-based paint that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a component.

**Title 17, §35037. “Lead Hazard”:** Deteriorated LBP, contaminated dust or soil, disturbing LBP or presumed LBP without containment, or any other nuisance which may result in persistent and quantifiable lead exposure.

Substandard Housing
HSC 17920.10 Deteriorated LBP ...as defined in Title 17

January 1999
§ 35022. Deteriorated Lead-Based Paint: “means lead-based paint or surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a component.”

April 2008
§35022. Deteriorated Lead-Based Paint: “means lead-based paint or presumed lead-based paint that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a component.

*Chemical test kits are not sufficient to say paint is not lead-based paint
Substandard Housing

Department of Health Services SB 460 FAQs

Keep in mind that SB 460 contains two definitions for “lead hazard.”

17920.10(c) “Deteriorated lead-based paint” & “Disturbing lead-based paint without containment"

Shall be considered lead hazards … only if the aggregate affected area is equal to or in excess of one of the following:
1) 2 square feet in any one interior room or space.
2) 20 square feet on exterior surfaces.
3) 10% of the surface area on the interior or exterior type of component with a small surface area. Examples include windowsills, baseboards, and trim.

*Any amounts if related to child with elevated blood lead level
Regulatory Background

Substandard Housing – SAFE Work Practices

Abatement: Measures to eliminate lead hazards

≥ 20 years: Permanent Abatement
• Remove: Strip paint to substrate
• Replace: Component Replacement
• Enclose: Mechanical Enclosure System
• Encapsulate: Adhesive Enclosure

< 20 years: AKA Interim Controls
• Stabilize: Prep and paint using lead safe work practices (LSWP)
• Ongoing Maintenance by Owner

Required
1) Certified Abatement Contractor
2) Clearance: Certified Inspector

*Consider item 3 equivalent to items 1 & 2

HSC 105251 & Title 17 §36100(a)6
Safe Work Practices: Renovations & Abatement

- Dust & Debris 100% Containment
  - Wet Scraping
  - Power tools with HEPA exhaust
- Worker Protection (OSHA)
  - Protective Clothing
  - Wash Stations
- Restricted Work Area
- HEPA Vacuum
- Warning Signs
- EPA Certifications Available
- OR: CA Certified Inspector Report / No LBP
Regulatory Background

Safe Work Practices: Renovations & Abatement
Regulatory Background

Renovations

**Renovations:** Repairs, Maintenance, Upgrades
Any activity that disturbs painted surfaces on Pre 1978 Residential or Public Building that has not been tested and classified as negative for LBP

- Prep and paint
- Component Replacement
- Plumbing Repairs
- Pressure washing / blasting
- Most permitted projects
Unsafe Work Practices: Renovations
Unsafe Work Practices: Renovations

**HSC 17920.10:** Lead hazard... disturbing lead-based paint without *containment* as defined in Title 17

**§36050. Lead-Safe Work Practices**

(a) Any individual conducting lead activities... shall:

(1) Use containment

(2) Ensure that the work area has no visible dust or debris following the completion of a project
Unsafe Work Practices: Renovations

EPA Renovate Repair and Painting Rule
Residential / Child Occupied Facilities
• 6 square feet of interior (e.g., 3x2 ft) painted surface
• Disturb more than 20 square feet of exterior
• Replace any windows

Required
Safe Work Practices
EPA Certified Firms & Certified Renovators
Renovate Right

EPA RRP Rule: Referral

Enforcement Official
Submit RRP Referral Form with Pictures (evidence) to EPA Lead-Based Paint Enforcement Coordinator Max Weintraub

Resident
https://www.epa.gov/lead/forms/pacific-southwest-renovation-repair-and-painting-rule-tips-complaints
RRP Rule: Suggested Supplemental NOV Language

Contractors that disturb painted surfaces in housing built prior to 1978 and any child occupied facility may require certification in accordance with the EPA Renovation, Repair, and Painting (RRP) rule. EPA Certified Firms are required to assign an EPA Certified Renovator to projects where painted surface are disturbed in these buildings. This rule is enforced by the EPA with penalties of up to $37,500 per day per occurrence. Visit the EPA website at www.epa.gov/lead to learn more about RRP Rule, obtain an EPA Certified Firm and Certified Renovator Certifications. The EPA has up to 90 days to process your Certified Firm application.
Allowable Levels of Lead in Paint

- Pre-1955: White paint was commonly 50% lead (500,000 ppm)
- 1955: Optional industrial voluntary reduction to 1% (10,000 ppm)
- 1971: Federal mandatory maximum allowable level in new paint set at 1% (10,000 ppm)


1909 France, Belgium and Austria ban white lead interior paint
1923 Czechoslovakia, Sweden
1924 Poland, Spain
1925 Bulgaria, Chile, Romania
1926 Greece
1928 Cuba, Luxembourg
1929 Finland, Norway, Yugoslavia
1933 Columbia, Nicaragua, Uruguay, Venezuela
1936 Argentina
1938 Mexico
1939 Afghanistan, the Netherlands
1952 Italy
1956 Hungary, Morocco, Tunisia
1960-1988 19 more

It was not until 1978 that the US adopted the ban.
EXAMPLES OF “ORDER TO ABATE” LANGUAGE

Example 1: (insert Agency name) conducted an inspection on (insert date) at a property you own at (insert address) and identified lead-based paint hazards that are violations of State Housing Law (California Health and Safety Code section 17920.10). Pursuant to California Health and Safety Code sections 17961 and 17980, (insert Agency name) is ordering you to abate the identified lead hazards within 30 days in order to protect current and future residents from lead poisoning.

Example 2: (insert Agency name) conducted an inspection on (insert date) at (insert address) and identified an activity that is creating a lead hazard. Pursuant to California Health and Safety Code section 105256, (insert Agency name) is issuing a Stop Work Order. You are required to (1) immediately stop the work that is disturbing paint, (2) clean up any paint chips, dust, and debris, and (3) place plastic tarps on the ground to catch any paint chips or dust before resuming work. Failure to comply may result in $1,000 fine.

Second Paragraph for both Example 1 and Example 2: All deteriorated presumed lead-based paint shall be re-painted using “lead-safe” work practices, such as identified in Title 17, California Code of Regulations, sections 35016 and 36050. When the work is completed, contact our office and we will conduct a re-inspection to confirm that substandard housing conditions have been abated. For additional information on “lead safe” work practices, or to find a contractor who is trained and certified to conduct lead abatement activities, please contact the California Department of Public Health at (800) 597-5323 or via the internet at www.cdph.ca.gov/programs/clppb
What to tell owners/managers

- Ensure that all of your maintenance staff and any contractors you hire use lead-safe work practices.
- Consider hiring a certified lead inspector to test the property for lead hazards.
- Conduct inspections for deteriorated paint at turnover and annually and repair immediately.
- Eliminating lead hazards improves property and avoids liability.

What to tell tenants

- If you live in a building built before 1978, report any deteriorated paint to your landlord immediately.
- Maintenance staff and contractors remodeling any building built before 1978 are required to use “lead-safe” work practices (such as putting down plastic tarps to catch paint chips and debris).
- If you see a worker who is not using “lead-safe” work practices, contact your local building department.
RELEVANT CODES:

**DETERIORATED LEAD-BASED PAINT**

- **HEALTH AND SAFETY CODE SECTION 17920.10 (STATE HOUSING LAW)**
- **HEALTH AND SAFETY CODE SECTION 105256**
- **FAILURE TO USE LEAD-SAFE WORK PRACTICES/CREATING A LEAD HAZARD HEALTH AND SAFETY CODE SECTION 105255 | TITLE 17, CA CODE OF REGULATIONS, SEC. 36050**

**HEALTH AND SAFETY CODE §105256:** AUTHORITY TO Issue AN ORDER to ABATE FOR A CONDITION THAT HAS CREATED A LEAD HAZARD

**HEALTH AND SAFETY CODE §17920.10:**
Any portion of a building or premises that contains lead hazards is in violation of the state housing law. Lead hazards under this part are:

- DETERIORATED LEAD-BASED PAINT-INCLUDING PRESUMED.
- LEAD-CONTAMINATED DUST
- LEAD-CONTAMINATED SOIL
- DISTURBING LEAD-BASED PAINT WITHOUT CONTAINMENT
WRONG!

SYSTEMS CHANGE BENEFITS

WRONG !!

RIGHT!
Larry Brooks, CACEO Region 2 Boardmember
Director
Alameda County Healthy Homes Department
Lead Poisoning Prevention Program
Larry.brooks@acgov.org
Twitter @LawrenceWBrooks
2000 Embarcadero, Suite 300
Oakland, CA 94606
510-567-6852 Fax: 510-567-8272
http://www.achhd.org/
Chris Lee
Lead Safety and Healthy Homes Coordinator
Environmental Services Department
9601 Ridgehaven Court, Suite 310
San Diego, CA 92123
T (858) 627-3307
F (858) 492-5089
cjlee@sandiego.gov

City of San Diego
Our vision: a world-class city for all