



GREEN SCIENCE
POLICY INSTITUTE

Improved Building Codes For Fire Safety and Health

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Updating Flammability Standards

- Children's sleepwear -- 1976
- Furniture and baby product foam -- 2013
- Foam plastic building insulation -- 2019?

Flame Retardants in Insulation Are Associated with Health Problems



Reproductive Impairment
Hormone Disruption
Neurological Impairment
Possible Carcinogenicity

Persistent
Bioaccumulative
Aquatic Toxicity

PolyFR: Another Regrettable Substitute?

- 2019 study on degradation of “PolyFR”
- Heat and UV light cause breakdown to smaller compounds
- Some products are brominated organics and probably more toxic
- PolyFR is likely a regrettable substitute, not worthy of its “green” marketing

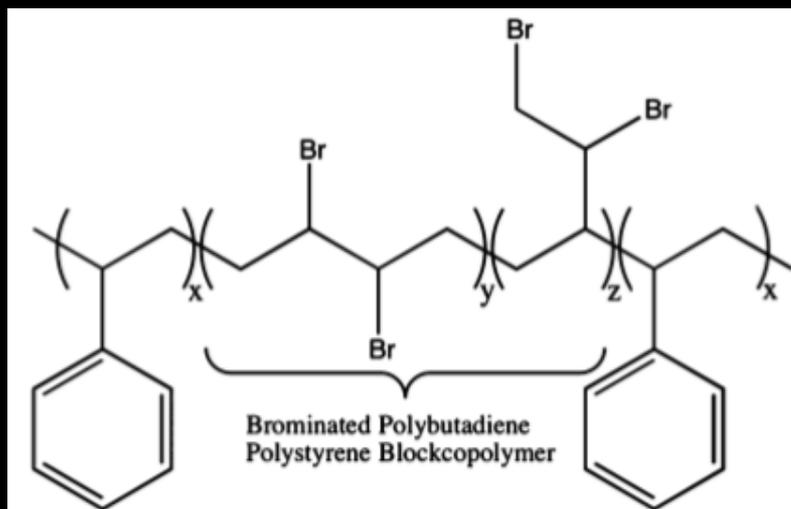
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Degradation of the Polymeric Brominated Flame Retardant “Polymeric FR” by Heat and UV Exposure

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ABSTRACT: Monomeric brominated flame retardants often pose risks to the environment. The new group of polymeric flame retardants is claimed to be a safer alternative due to their high molecular weight and persistence by design. Within this publication, the degradation of a commercially widely applied example of this group—the polymer “Polymeric FR”—was studied during UV irradiation and long-term exposure to heat (60 °C) for up to 36 weeks. Both treatments led to a variety of degradation products, which might have potentially adverse environmental effects and an increased mobility compared to the mother polymer.



Are flame retardants necessary
in foam plastic building insulation?

Building codes drive use of flame retardants in insulation



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INFORMATION PAPER

Flame retardants in building insulation: a case for re-evaluating building codes

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Flame retardants can increase smoke toxicity more than they reduce fire growth

Flame retardants delay, but don't prevent foam from burning

Flame retardants can increase:



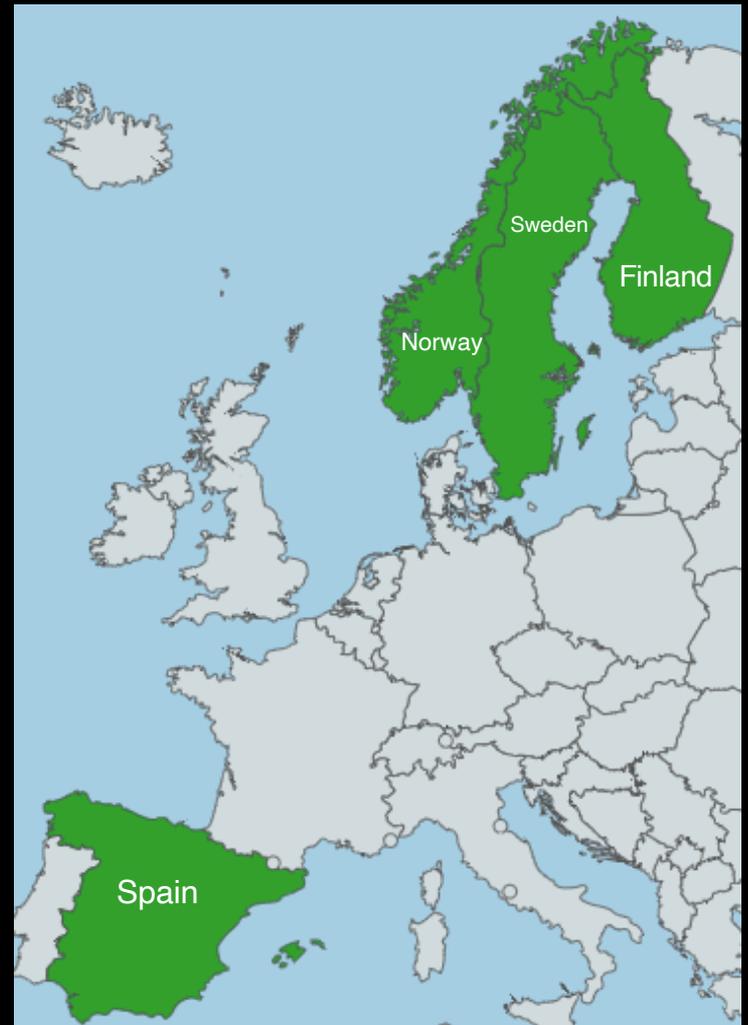
- Soot and Smoke
- Carbon Monoxide and Hydrogen Cyanide
- Dioxins and Furans

Updated Codes

FR-free foam insulation is allowed in Spain, Norway, Sweden, and Finland

97% of XPS and EPS in Sweden and Norway is FR- free.

Codes have been in place for up to 18 years without repeal.





Office of Governor

Edmund G. Brown Jr.



Governor Brown Directs State Agencies to Revise Flammability Standards

‘We must find better ways to meet fire safety standards by reducing and eliminating - wherever possible - dangerous chemicals.’

California Assembly Bill 127 (signed October, 2013):

- California fire marshal may propose updates that:
 - Maintain overall fire safety
 - Provide flexibility in meeting fire safety standards with or without chemical flame retardants

Oklahoma State University Study: Summary

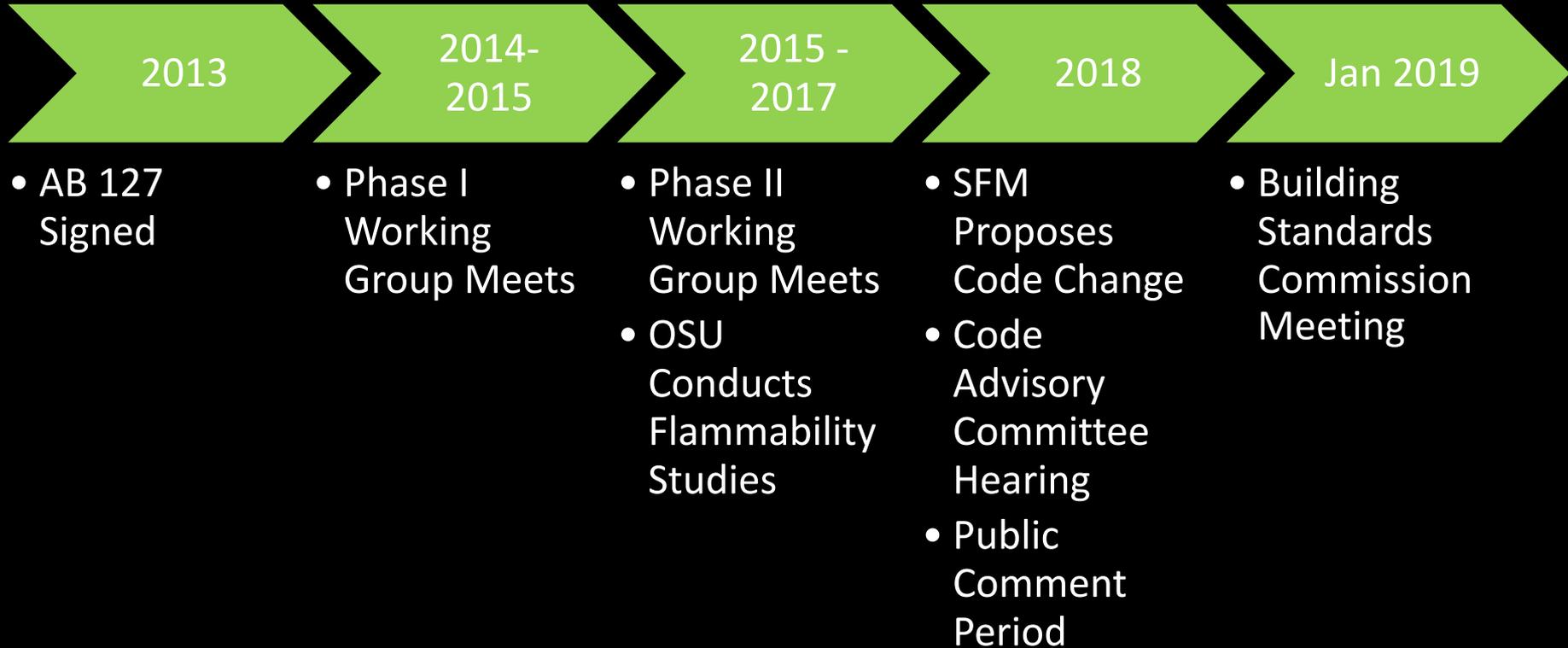
Commissioned by California OSFM following AB 127 Working Group.

Key Findings

- Comparable ignition and heat release rates between foam plastic insulation with and without flame retardants and other combustible construction materials .
- When installed below grade, no risk of fire spread to the structure from insulation without flame retardants.

California codes can be safely updated to allow below-grade use of insulation without flame retardants.

California Code Adoption Timeline



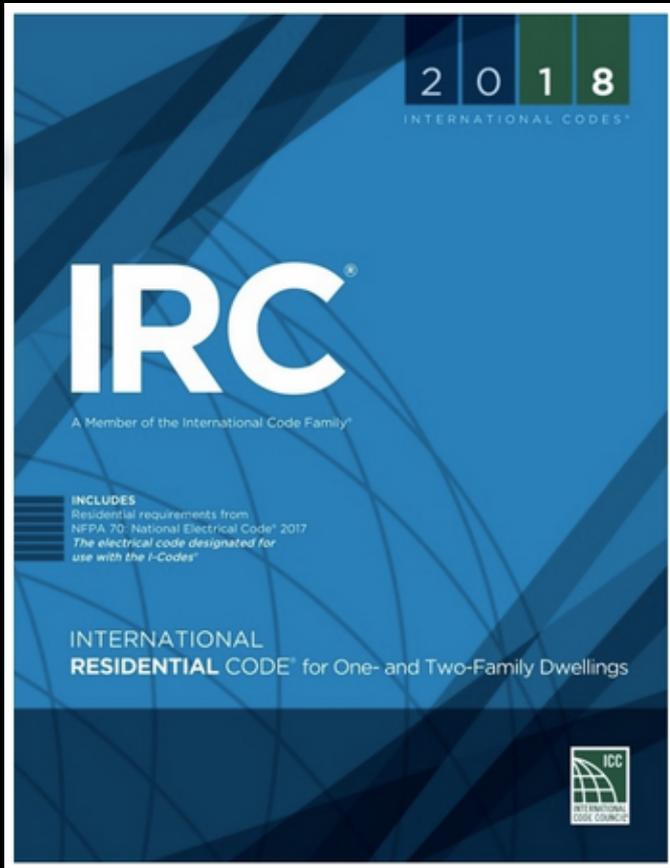
California Building Standards Commission Hearing

- 26 Speakers attend or call in to testify in support of Safer Insulation
- Fierce chemical industry opposition



- California Building Standards Commission unanimously votes to allow flame-retardant free insulation below a concrete slab

2019 Opportunity for Insulation Code change:



- 2021 International Residential Code will be updated in 2019
- Proposal Similar to California Code
- Lead Proponent: Reax Engineering
 - Co-proponents include: San Francisco Firefighters Cancer Prevention Foundation, American Institute of Architects, County Building Officials Association of California

Committee Action Hearings

- April 28-May 8 (pending meeting agenda publication) in Albuquerque, NM
 - Also hearings at Public Comment Meeting, October 23-30 Las Vegas, NV
- Who would give persuasive testimony?
- Who is willing to testify?

SUPPORTERS OF SAFER INSULATION



SIEGEL & STRAIN Architects



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YOST GRUBE HALL ARCHITECTURE

SEBESTA



GGLO DESIGN



GREEN ARCHITECTURE SUSTAINABILITY CONSULTING COMMUNITY ENGAGEMENT



National Center for Healthy Housing



TERRAPIN BRIGHT GREEN

BuildingGreen

The Durst Organization

hellmuth + bicknese architects



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