PFAS in the Built Environment:
Tracking Down Forever Chemicals in Building Products

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Bring together decision makers

Scientific Research

Policy & Purchasing Change

Communicate
The Six Classes

1. PFAS
2. Antimicrobials
3. Flame Retardants
4. Bisphenols + Phthalates
5. Some Solvents
6. Certain Metals

VIEW and SHARE: www.SixClasses.org
PFAS are Problematic & Difficult to Clean Up

Prevention is preferable!

Only use when necessary
PFAS Uses in Building Materials

- Goal: Inspire building industry stakeholders to:
  - Reduce unnecessary uses of PFAS
  - Develop safer alternatives
Methodology

Peer-reviewed studies
Gov. & NGO reports
Active U.S. Patents
Company Websites
Transparency Labels
Caveats

• Not exhaustive. We may have missed some uses.

• Market share of PFAS-containing products usually unclear

Alternatives

• Market share?

• Are they effective?

• Are they also chemicals of concern?
Building Product Categories

- Roofing
- Coatings
- Flooring
- Sealants & Adhesives
- Glass
- Fabric
- Wires & Cables
- Tape
- Wood Products
- Solar Panels
- Artificial Turf
- Seismic Damping
Roofing

- PFAS used to: resist weathering, prolong roof's useful life, reflecting solar radiation (for cooling).
Asphalt Roofing

• PFAS used to coat special high-reflectivity granules
• Increased reflectivity keeps building cooler

Layers of a shingle
- Ceramic granules
- Asphalt body
- Fiberglass or felt mat

Solar Energy/Heat
- PFAS Coating
- Pigment
- Base Mineral Core
Metal Roofing

- PFAS coatings used to protect against:
  - Corrosion
  - Scratching
  - Color loss

- Increased reflectivity keeps building cooler

Weatherproofing Membranes

- Moisture control, reflectivity, durability, stain resistance
- Can contain PFAS layer or PFAS coating
Tensile Roofs

• Flexible textile-based roofs
• Examples: Denver International Airport, Minnesota Metrodome

Roofing accessories

• Gutters: prevent clogging and retain color
• Roofing nails: increases durability and helps nail penetrate shingles
Roofing: Potential Source of PFAS to the Environment?
Coatings

• PFAS used to improve: ease of application, weather resistance, finish & durability
Metal Coatings

• PFAS in:
  • Roofing
  • Curtain walls
  • Bridges
  • Industrial structures
  • Elevators
  • Sanitary fixtures

• Usually factory applied (coil coatings)
Paint

- PFAS used as:
  - Binder
  - Additive
    - Improved flow, spread, glossiness
    - Decreased bubbling and peeling
- Specialty paints
  - Stain-resistant
  - Graffiti-proof
  - Water-repellent
- Powder coats
Wood lacquers & sealers

- PFAS used:
  - As wetting agent
  - For stain resistance, oil & water repellency

Plastic Coatings

- Bathtubs, countertops, window frames, whiteboards, etc.
Sealants & Adhesives

Sealants: Used to create an oil- and water-resistant barrier that protects building materials from stains, mold, and physical damage.
Grout, Tile, Stone, & Concrete Sealers

- PFAS used to increase oil-, water-, and stain resistance
- Examples:
  - stone countertops
  - kitchen and bathroom tilework
  - stone, tile, or concrete flooring
  - patios
  - staircases
  - foundations
  - parking garages
- Exterior surfaces: limit snow & ice buildup
Grout sealer recall

In 2005, the CPSC recalled 300,000 cans of grout sealer due to respiratory complications associated with fluoropolymer exposure.
Fabrics

• PFAS used for stain-, soil-, & water resistance
• Factory applied or after-market treatment
• Exposure concern
• Efficacy?
Healthier Materials Intervention

• Compared PFAS levels in dust in conventional vs. rehabbed academic buildings

• PFAS-free furniture and carpet reduced PFAS levels in dust by 78%

Young et al., Environ Intl. 2021
Fabrics

- PFAS used for stain-, soil-, & water resistance
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[Diagram showing PFAS in fabric and dust, with a child playing nearby]
Carpet industry phasing out PFAS

- Demand from large purchasers
- Potential CA regulation
- Potential liability

- Major manufacturers decide to stop using PFAS
Lifecycle impacts

• PFAS production and product manufacturing
• Product use
  • Indoor air, dust
  • Stormwater runoff?
• End of life
  • Landfill
  • Recycling
You Can Help

1. Ingredient disclosure: request it or provide it
   • See our appendix for examples
2. Ask, “Is this function really needed?”
3. Choose safer, non-PFAS alternatives
4. Avoid entire class of PFAS (be aware of “PFOA-free”)
Share & Respond

- Please share the report
- Are there PFAS uses in building materials that we missed?
- Send us information about functional non-PFAS alternatives in building products

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Learn More

PFAS & building materials webinar w/ Rob Bilott
Wed. May 13, 10am pacific

GreenSciencePolicy.org
Sign up for our monthly newsletter and visit our website

PFASCentral.org
Get the latest Science, News, and Policy as well as see our PFAS-Free list for Consumer Products
Thank you!

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Questions?

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