

# Increasing Energy Efficiency

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## Decreasing Toxics In Homes & Communities



Bill Walsh  
Founder & President

6<sup>th</sup> Annual HBCU Climate Change Conference

# ABOUT HBN

BUILDING A HEALTHY WORLD

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## Our Mission

To advance human and environmental health by improving hazardous chemical transparency and inspiring product innovation.



**HEALTHY  
BUILDING  
NETWORK**



In depth research on products from a lifecycle perspective: building occupants, workers, frontline communities, environmental justice



**HEALTHY  
BUILDING  
NETWORK**



[healthybuilding.net/reports](https://healthybuilding.net/reports)

## Find Healthier Substances

Compare hazards, avoid restricted substances,  
and find safer alternatives.

[Register for Free](#)

[Take the tour](#)

**Comprehensive hazard data for over  
85,000 chemicals. A community of  
experts and advocates to help make  
sense of it**



**HEALTHY  
BUILDING  
NETWORK**



[healthybuilding.net](https://healthybuilding.net)

<https://commons.healthymaterials.net/home>



Images: CCH/Mithun, Liberty Bank Building; HBN; MSR, Rose



Supporting affordable housing leaders who are improving human health by using less toxic building materials.



Healthybuilding.net  
<https://homefree.healthybuilding.net/>


Making Affordable Multifamily Housing More Energy Efficient

# A Guide to Healthier Upgrade Materials

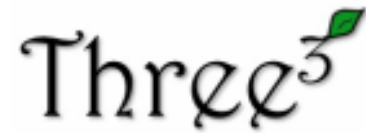


 ENERGY  
EFFICIENCY  
FOR ALL

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**ENERGY  
EFFICIENCY  
FOR ALL**



**ELEVATE ENERGY**



Making Affordable Multifamily Housing More Energy Efficient

# A Guide to Healthier Upgrade Materials







## Why Materials for affordable housing?

### Disproportionate Impacts

- Low-income Families/Children
- Construction Workers
- Fenceline Communities

### Opportunity – Multiple Attributes

- Energy – Climate – Health
- Actionable Solutions

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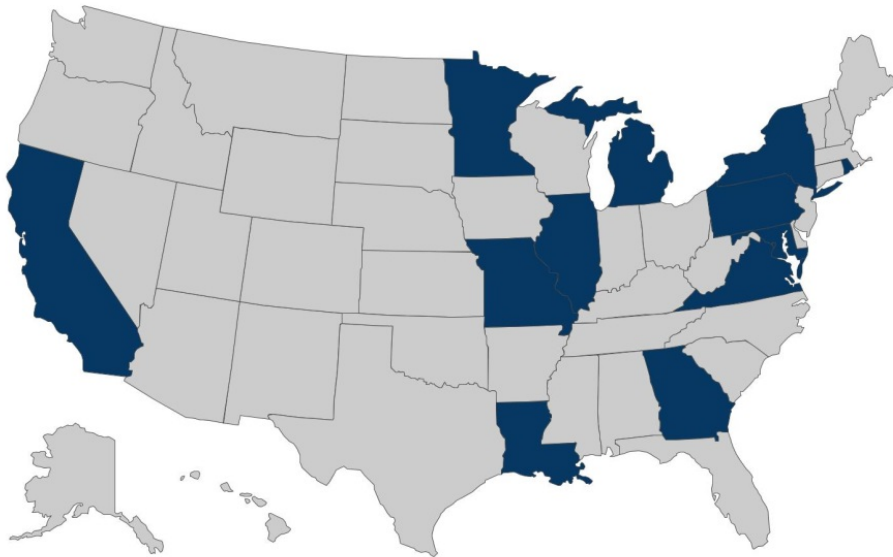
# GOALS

Increase utilization of healthier EE retrofit materials in affordable multi-family housing to:

- Reduce exposures to chemicals of concern throughout product life cycles
- Improve indoor environmental quality
- Make buildings more energy efficient

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# What's being used in EE retrofits?



## Some commonly used insulation materials:

- Fiber glass
- Cellulose
- Foam board
- Spray foam



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## Chemical Concerns: Common Retrofit Materials

Isocyanates

Flame Retardants

Formaldehyde

Phthalates

Asthma

Cancer

Reproductive Health

Developmental Health

Health-Based Ranking  (Green is best; red is worst)	Insulation Type	R-Value per Inch*	Relative Installed Cost per R-Value**	Special Installation Equipment Required	Vapor Retarder^	Air Barrier Material^^	Level of Transparency on Chemical Content***  (More shading indicates less transparency within product type)
	Expanded Cork Board	3.6-4.2	\$\$\$\$	no	Class III	Information not available	
	<b>Blown-In Fiber Glass</b>						
	Loose-Fill Fiber Glass	2.2-3.1	\$	yes	Vapor permeable	Not an air barrier	
	Dense-Pack Fiber Glass	3.7-4.6	\$\$-\$	yes	Vapor permeable	Not an air barrier but does reduce airflow	
	Spray-Applied Fiber Glass	4.0-4.3	\$\$-\$	yes	Vapor permeable	Not an air barrier but does reduce airflow	
	Fiber Glass Batts/Blankets (Kraft-Faced and Unfaced)	2.9-4.3	\$	no	Kraft-faced: Class II, Unfaced: Vapor permeable	Not an air barrier	
	Fiber Glass Batts/Blankets (PSK or FSK-Faced, Basement Wall Insulation)	Duct wrap: 2.7-3.2 <sup>†</sup> , Basement wall insulation: 3.0-3.5	\$\$-\$	no	Class I (except basement wall insulation where facing is perforated to allow for moisture transfer)	Facing may be an air barrier material	
	Cellulose/Cotton Batts and Blankets (Unfaced)	3.5-4.0	\$\$-\$\$\$	no	Vapor permeable	Not an air barrier	
	<b>Blown-In Cellulose</b>						
	Loose-Fill Cellulose	2.7-3.4	\$	yes	Vapor permeable	Not an air barrier	
	Dense-Pack Cellulose	3.5-3.8	\$\$-\$	yes	Vapor permeable	Not an air barrier but does reduce airflow	
	Wet-Blown Cellulose	3.6-3.8	\$\$-\$	yes	Vapor permeable	Not an air barrier but does reduce airflow	

# Health-Based Ranking/ Hazard Spectrum



Formaldehyde binder



Halogenated flame  
retardants



Organotin catalyst  
Isocyanates

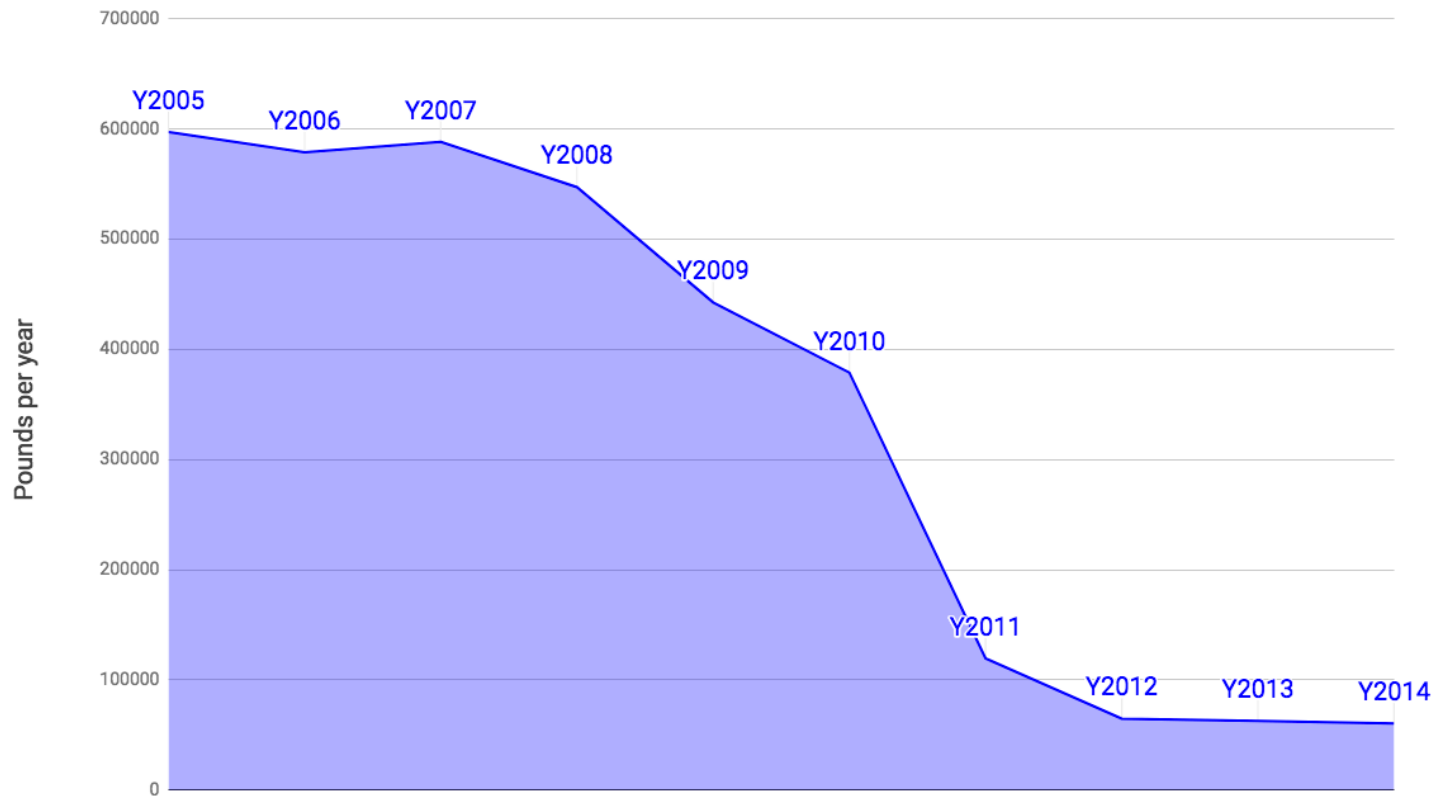


## Relative cost per R-value

<b>Expanded Cork</b>	<b>\$\$\$\$</b>
<b>Fiber Glass</b>	<b>\$-\$\$</b>
<b>Cellulose</b>	<b>\$-\$\$ (blown) \$\$-\$\$\$ (blanket)</b>
<b>Mineral Wool</b>	<b>\$ (batts) \$\$-\$\$\$ (boards)</b>
<b>Polyiso and EPS</b>	<b>\$\$-\$\$\$</b>
<b>XPS</b>	<b>\$\$\$</b>
<b>Spray Foam</b>	<b>\$\$-\$\$\$ (open cell) \$\$\$ (closed cell)</b>

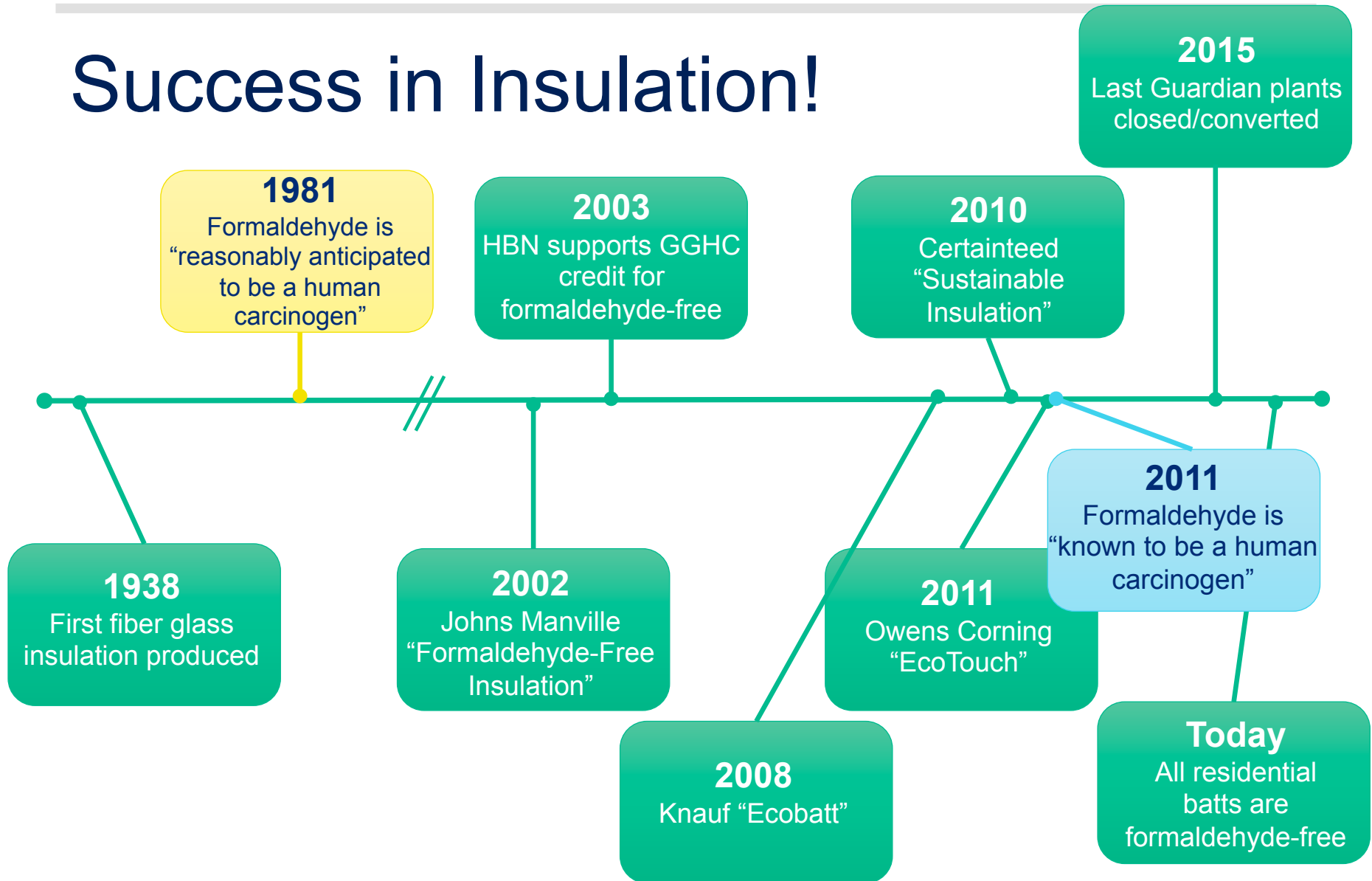
# Benefits for fenceline communities

**Formaldehyde Releases (Residential Fiberglass Insulation Factories, US and Canada)**





# Success in Insulation!



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# Overall Recommendations

- Prefer fiber glass or cellulose
- Avoid formaldehyde-based binders
- If you need a rigid board, prefer rigid mineral wool
- Avoid foam insulation
- For both air sealing and insulation, consider using caulk and/or tape to seal gaps before installing insulation

## Take Action...

- Avoid the highest hazard substances by choosing products ranked better on the hazard spectrum
- Consider potential impacts of materials throughout their life cycles
- Ask for content transparency
- **USE HomeFree guidance [[www.healthybuilding.net](http://www.healthybuilding.net)]**

Choose the type of product you are looking for



Flooring



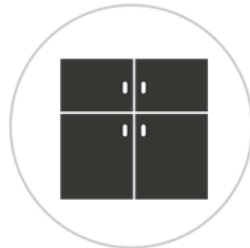
Paint



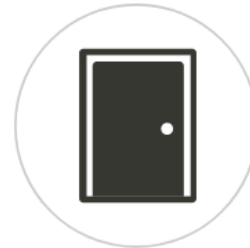
Drywall



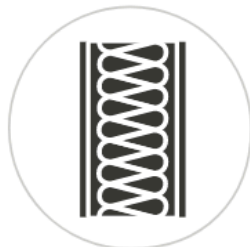
Countertops



Cabinetry & Millwork



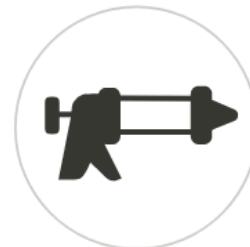
Doors



Insulation



Flooring Adhesives



Sealants



## Paints by Type Hazard Spectrum

Individual paints can vary significantly in their health profiles, however some categories of interior paints are better than others when it comes to the health of building occupants and installers. Below, HBN ranks different types of interior latex paints on the market on a simplified spectrum.[1] Products in the green categories are better options than those in the orange or red, and products in the yellow categories are generally less preferable than those at the top, but are better choices than those at the bottom.

[Read more..](#)

### Related Product News

#### It's Not Just About VOCs: Select APE-free Paint, Too

Earlier this year, the Healthy Building Network (HBN) recommended specifying NPE-free paints in addition to low- or very low VOC paints to help protect human health and the environment. HBN is expanding this recommendation to include the broader category of chemical compounds known as APEs, ...

#### A Brush With Research: A HomeFree Member Searches for Healthy Paint

Guest blogger: Sunshine Mathon, Foundation Communities in Austin, TX  
Spoiler Alert: Sherwin-Williams Pro Mar 400 Zero VOC paints was identified as the "sweet spot" of cost and health as best as we could determine. My journey to this conclusion ca...

#### A Primer on Interior Paint

Interior paints can cover enormous amounts of a building's surface area in a

[GS-11 Certified, Very Low VOC Content, and Low VOC Emissions](#)

[APE-free, Low VOC Content, and Low VOC Emissions](#)

[Low VOC Content](#)

[Standard](#)

[Recycled Paints](#)

[Specialty Paints](#)

[Paints Advertised as "Antimicrobial"](#)



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# HOW BELI

**Bill Walsh**  
**[bwalsh@healthybuilding.net](mailto:bwalsh@healthybuilding.net)**

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**HEALTHYBUILDING.NET**