


CHAPTER


PROFESSIONAL DEVELOPMENT SERIES

PD Program:
Easy Ways to
Healthy
Interiors



**EASY WAYS TO
HEALTHY INTERIORS**

WITH ANNETTE K. STELMACK, LEED AP BD+C



INSPIRIT
Healthy by Design

Annette K. Stelmack

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SUSTAINABLE

Planet	Environmental stewardship & strategies	Long Term Principle	Meet needs of current generations without impairing future generations
People	Socially responsible & acceptable		
Profit	Economic impact & successful		

Products LCA Raw material extraction, material processing, part manufacturing, supply chain, assembly, product use, end of life

Build a Better World Optimize design to reduce negative impacts + improve quality of life without depleting natural resources

GREEN

Reduce, Reuse, Recycle, Repurpose, Redesign

Shorter Term Impacts
Building Siting; Structure Design; Energy, Water & Material Efficiency; Indoor Environmental Quality; Operations & Maintenance; Zero Waste

NATURAL

Biophilia is Evidence Based Design that Humans Connection with Nature Improves Health & Wellness
Fractal patterns Bring nature inside
Where do you go when you are stressed & exhausted to regenerate your being?

Non-Toxic

Healthier; zero VOCs, Indoor Air Quality; avoiding chemicals of concern, Red List Chemicals

Eco-friendly

Not harmful to environment; earth friendly, long life, biodegradable, green lite

Why Health Matters

Can we agree that if toxic chemicals from a building material are showing up in babies, then that is not a "green" building material?

~ BILL WALSH, HEALTHY BUILDING NETWORK



DESIGN **IMPACTS** LIVES

- Humans LIVE/WORK/PLAY inside 90% of time
- Higher pollutants inside vs outside
- Environmental sensitivities...beyond SBS

IAQ Polluters

Cleaners	Synthetics
Adhesives	Resins
Carpets	Ducts
Paints	Formaldehyde
Perfumes	Heavy Metals





IAQ Polluters	
Upholstery	Ventilation System
Cabinetry	Equipment
Particulates	VOCs
Substrates	Toiletries
Finishes	Furnishings

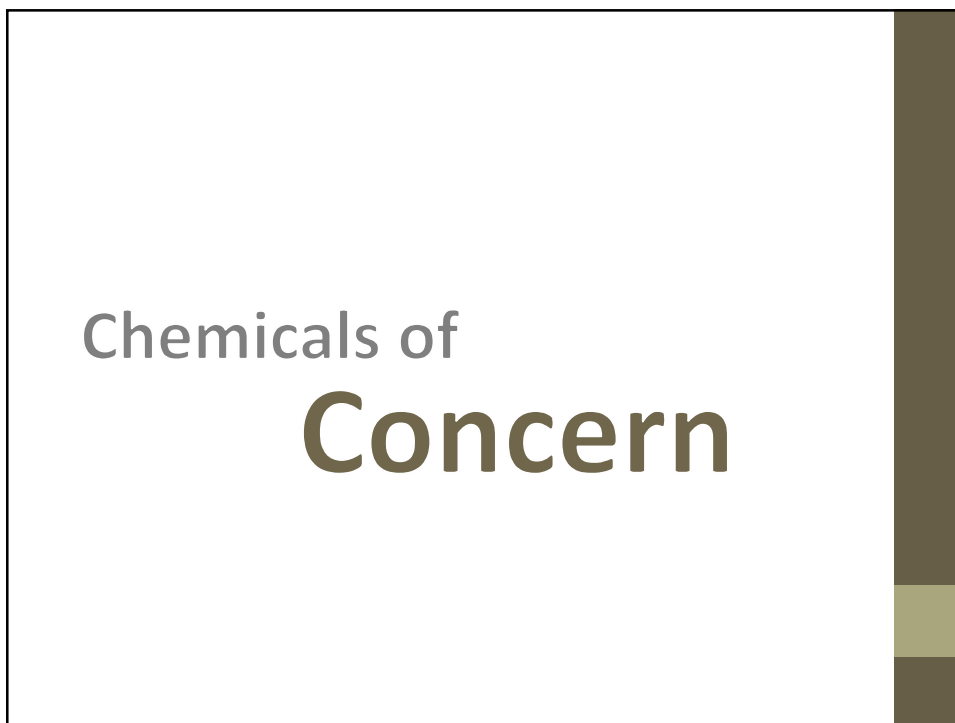


A client with multiple chemical sensitivities resides in this healthy home. All assemblies from the exterior to the interior including building materials, finishes, and furnishings were fully vetted to ensure healthy indoor environment.

*Designed by Rowland + Broughton
and Wendy Silverman
Product vetting by
Annette Stelmack*

Photo courtesy of Rowland + Broughton







CHEMICAL	PRODUCTS	HEALTH EFFECTS	REGULATORY STATUS
Asbestos	Auto brake pads and clutches, vinyl tiles, roofing materials	Cancer, asbestosis	Some uses banned since 1989, no new risk assessment scheduled
PERC	Dry-cleaning fluid, spot removers, water repellents	Probable carcinogen	No risk assessment scheduled
Phthalates	PVC plastic, toys, plastic wrap	Male reproductive harm, early puberty in girls	Action plan complete but on hold for further study
BPA	Food cans and other food containers, cash register receipts	Cancer, infertility, developmental harm, diabetes	Action plan complete but on hold for further study
Chlorinated Phosphate Fire Retardants	Upholstered furniture, foam cushions, baby car seats, insulation	Cancer, possible nerve and brain damage	Undergoing initial risk assessment
TBBPA & Related Chemicals	Flame retardant in electronics, auto parts, appliances	Potential carcinogen, endocrine disruption	Undergoing initial risk assessment
Brominated Phthalate Fire Retardants	Polyurethane foam for furniture and baby products	Potential developmental toxicity	Preliminary review, more data needed
1-Bromopropane	Aerosol cleaners and adhesives	Reproductive harm, probable carcinogen	Draft risk assessment undergoing peer review
DEHA	Plastic wrap, PVC plastic	Probable carcinogen, potential developmental toxicity	No risk assessment scheduled
P-dichlorobenzene	Moth balls, deodorant blocks	Probable carcinogen, liver and nerve damage	No risk assessment scheduled

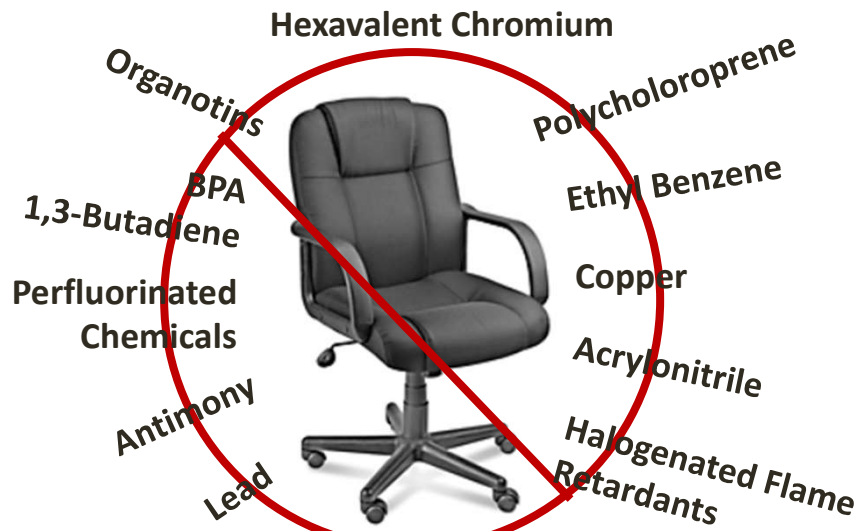
**EPA'S TOXIC
SUBSTANCE
CONTROL ACT**

- Asbestos
- Formaldehyde
- Lead
- Mercury
- PCBs
- Radon

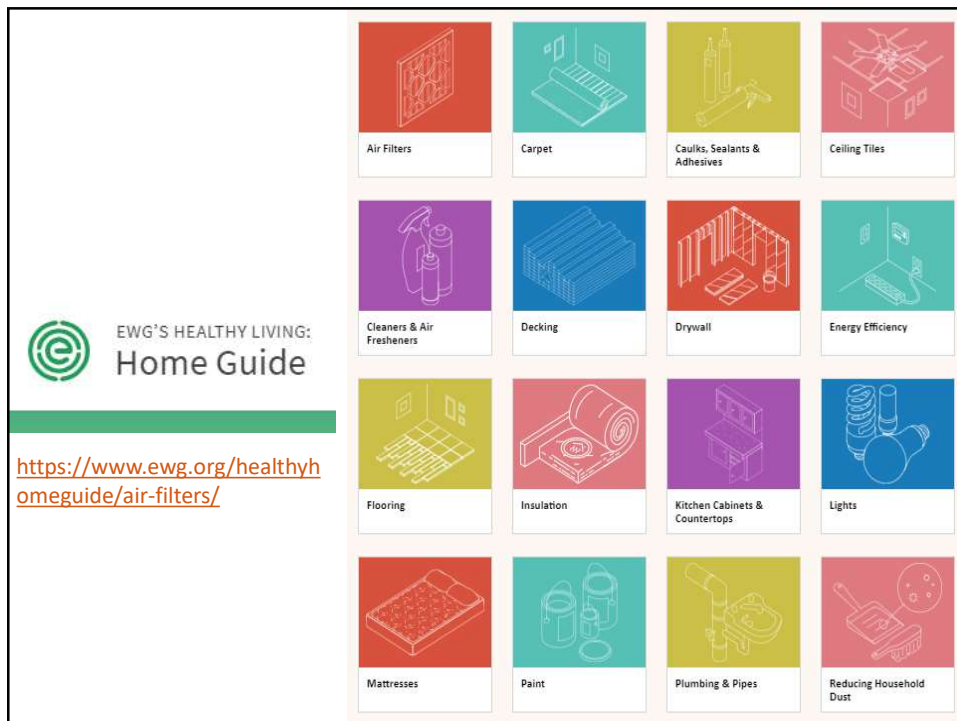
THIS IS A CHAIR




THIS IS A CHAIR ON TOXINS








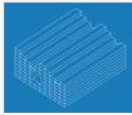










Amazing Resources

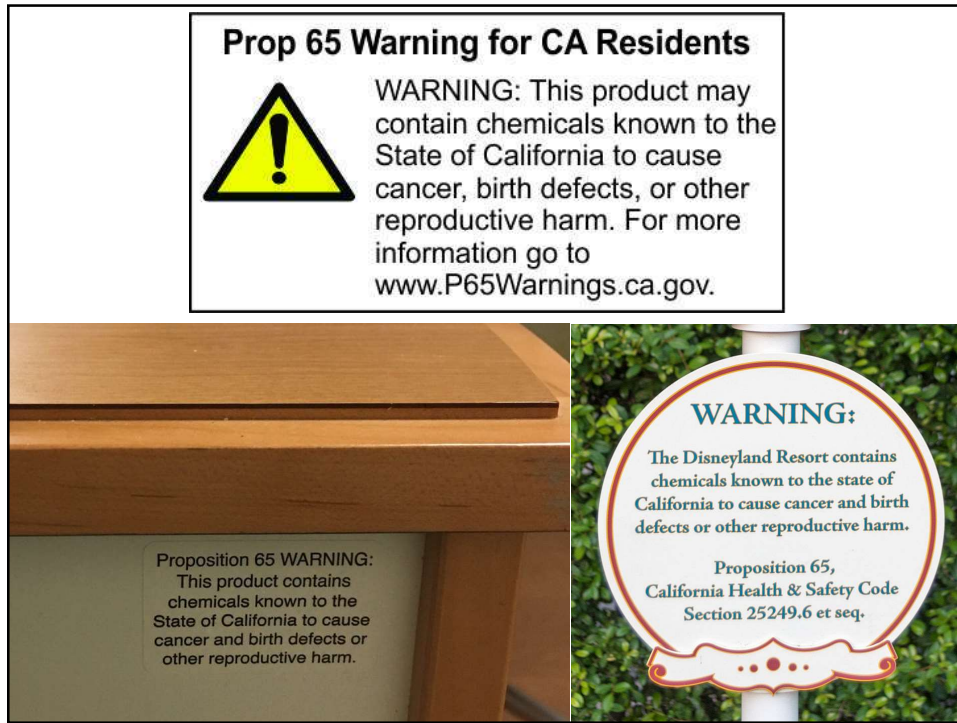


The image shows a grid of 16 icons representing various home improvement and health-related categories. Each icon is contained within a colored square with a white border. The categories are: Air Filters (red), Carpet (teal), Caulks, Sealants & Adhesives (yellow-green), Ceiling Tiles (pink), Cleaners & Air Fresheners (purple), Decking (blue), Drywall (orange-red), Energy Efficiency (light green), Flooring (yellow-green), Insulation (pink), Kitchen Cabinets & Countertops (purple), Lights (blue), Mattresses (red), Paint (teal), Plumbing & Pipes (yellow-green), and Reducing Household Dust (pink).

 EWG'S HEALTHY LIVING:
Home Guide

<https://www.ewg.org/healthyhomeguide/air-filters/>

 Air Filters	 Carpet	 Caulks, Sealants & Adhesives	 Ceiling Tiles
 Cleaners & Air Fresheners	 Decking	 Drywall	 Energy Efficiency
 Flooring	 Insulation	 Kitchen Cabinets & Countertops	 Lights
 Mattresses	 Paint	 Plumbing & Pipes	 Reducing Household Dust



Perkins + Will - Precautionary List

<https://transparency.perkinswill.com/lists/precautionary-list>

Substances

Arsenic	Bisphenol A (BPA)	Bromochlorodifluoromethane	Cadmium
Chlorinated Polyethylene (CPE)	Chlorinated Polyvinyl Chloride (CPVC)	Chlorofluorocarbons (CFC)	Chloroprene (2-chlor-1,3-butadiene)
Chlorosulfonated Polyethylene (CSPE)	Copper (for Exterior Material)	Creosote	Halogenated & Brominated Flame Retardants
Hexavalent Chromium (VI)	Hydrochlorofluorocarbons (HCFC)	Lead	Mercury
Organostannic Compounds	Pentachlorophenol	Perfluorocarbons (PFC)	Phthalates
Polystyrene	Polyurethane Foam	Polyvinyl Chloride (PVC)	Urea-Formaldehyde
Volatile Organic Compounds (VOCs)			

Carcinogen

Arsenic	Cadmium	Chlorinated Polyethylene (CPE)	Chlorinated Polyvinyl Chloride (CPVC)
Chloroprene (2-chlor-1,3-butadiene)	Chlorosulfonated Polyethylene (CSPE)	Creosote	Hexavalent Chromium (VI)
Lead	Pentachlorophenol	Phthalates	Polyvinyl Chloride (PVC)
Urea-Formaldehyde	Volatile Organic Compounds (VOCs)		

Cardiovascular or Blood Toxicant

Arsenic	Bisphenol A (BPA)	Cadmium	Chlorinated Polyethylene (CPE)
Chlorinated Polyvinyl Chloride (CPVC)	Chlorofluorocarbons (CFC)	Chlorosulfonated Polyethylene (CSPE)	Copper (for Exterior Material)
Hydrochlorofluorocarbons (HCFC)	Lead	Mercury	Organostannic Compounds
Pentachlorophenol	Polyurethane Foam	Polyvinyl Chloride (PVC)	



<https://www.usgbc.org/resources/leed-homes>

WELL v2™

TEN CONCEPTS

There are ten concepts in WELL v2:

Each concept consists of features with distinct health intents.

<https://v2.wellcertified.com/wellv2/en/concepts>

CONCEPTS

- Air
- Water
- Nourishment
- Light
- Movement
- Thermal Comfort
- Sound
- Materials
- Mind
- Community
- Innovation

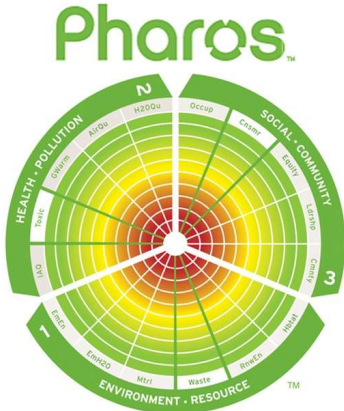

Living Building Challenge - Red List

<https://living-future.org/declare/declare-about/red-list/#watch-list>

- Asbestos
- Cadmium
- Chlorinated Polyethylene and Chlorosulfonated Polyethylene⁴³
- Chlorofluorocarbons (CFCs)
- Chloroprene (Neoprene)
- Formaldehyde (added)
- Halogenated Flame Retardants⁴⁴
- Hydrochlorofluorocarbons (HCFCs)
- Lead (added)
- Mercury
- Petrochemical Fertilizers and Pesticides⁴⁵
- Phthalates
- Polyvinyl Chloride (PVC)
- Wood treatments containing Creosote, Arsenic or Pentachlorophenol

HBN HEALTHY BUILDING NETWORK
KNOW BETTER <https://healthybuilding.net/>

Healthy Lives Follow Safer Product Choices




Pharos
<https://pharosproject.net/>



NIH


National Institute of Environmental Health Sciences
Your Environment. Your Health.

Environmental Health Topics
<https://www.niehs.nih.gov/health/topics/index.cfm>



The building industry's open standard for transparent material health

<https://www.hpd-collaborative.org/>



HPD
Health Product Declaration

EPD
Environmental Product Declaration

- Ecotoxicity
- Human Toxicity
- Abiotic Depletion
- Acidification potential
- Eutrophication potential
- Global Warming potential
- Ozone Layer Depletion potential
- Photochemical Ozone Creation potential

TRANSPARENCY. OPTIMIZATION. HEALTH.

mindful MATERIALS (mM) is a free platform with aggregated information on human health and environmental impacts for products from leading manufacturers, vetted by experts passionate about making it easier to make informed product choices.

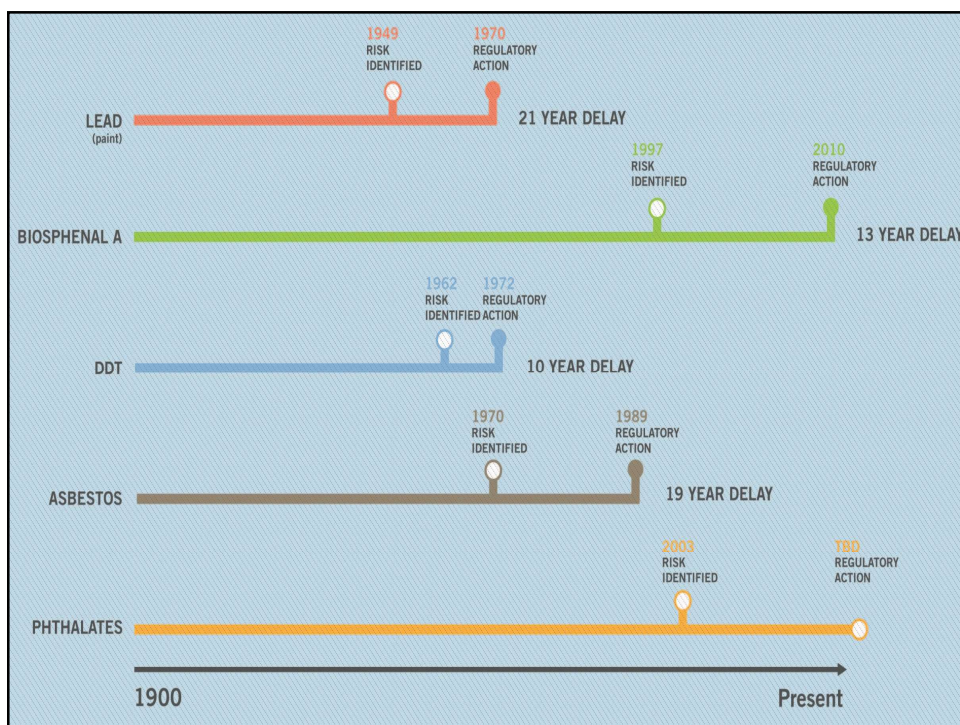


<http://www.mindfulmaterials.com/>



PRECAUTIONARY PRINCIPLE

When In Doubt
Seek Out Alternatives



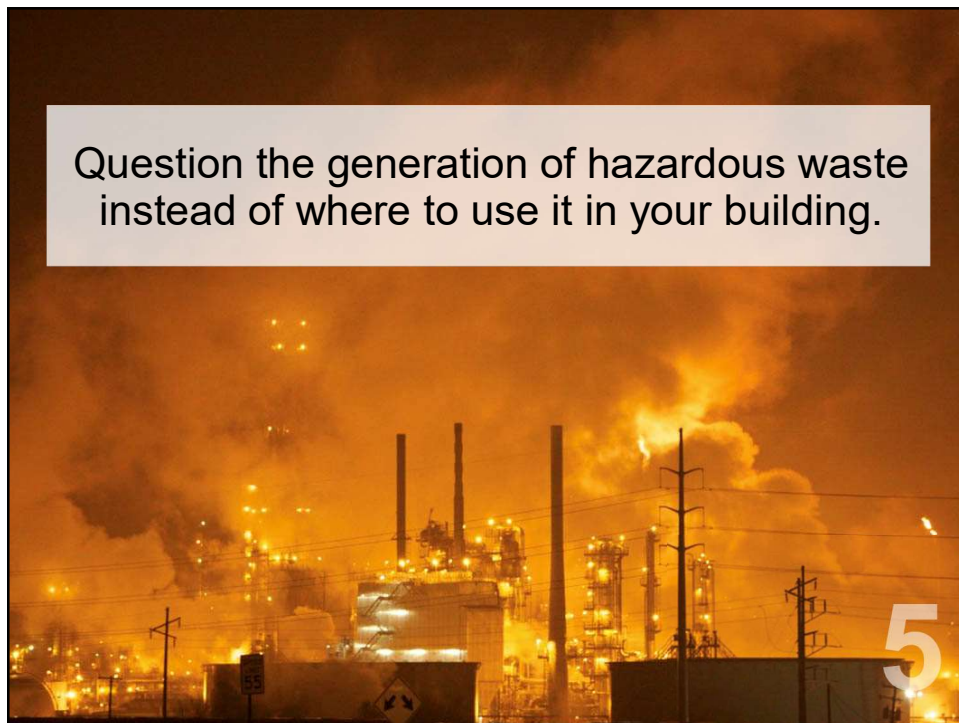
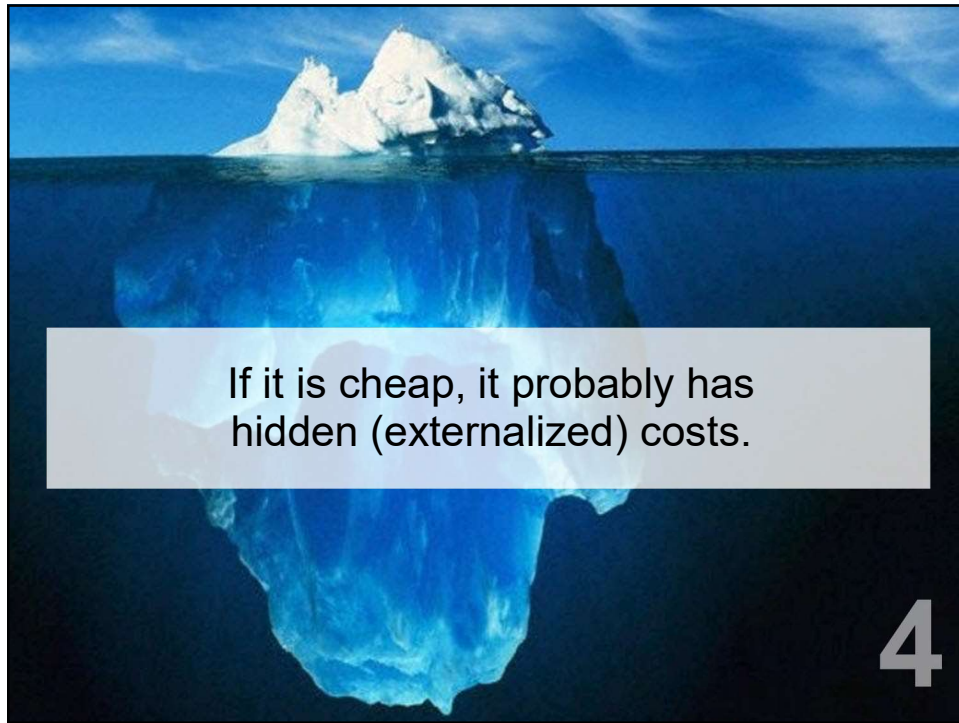
Material Selection Rules

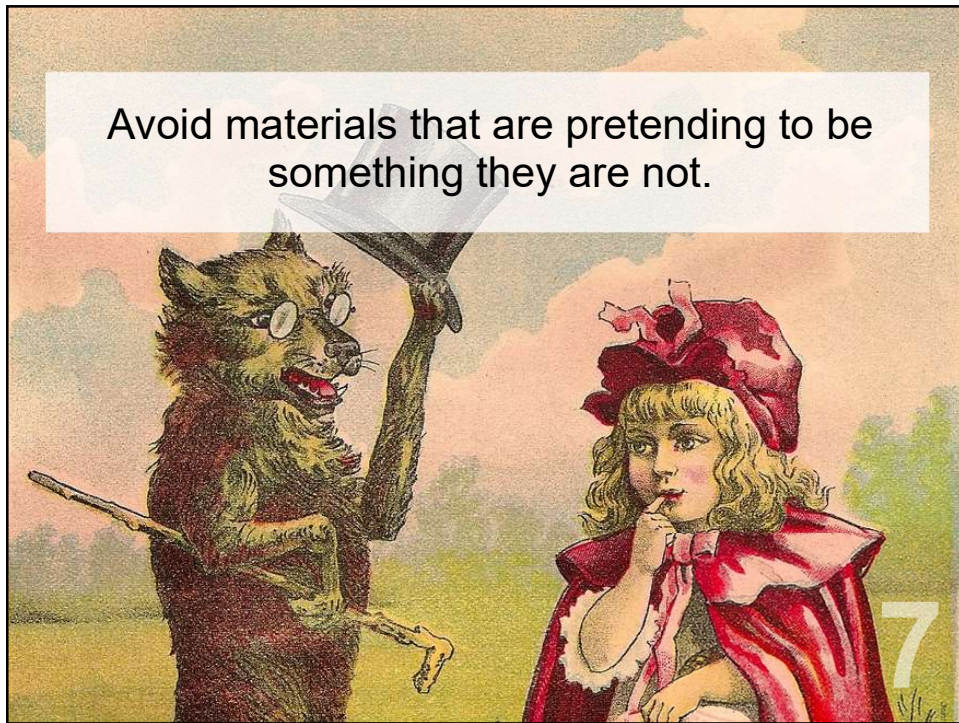
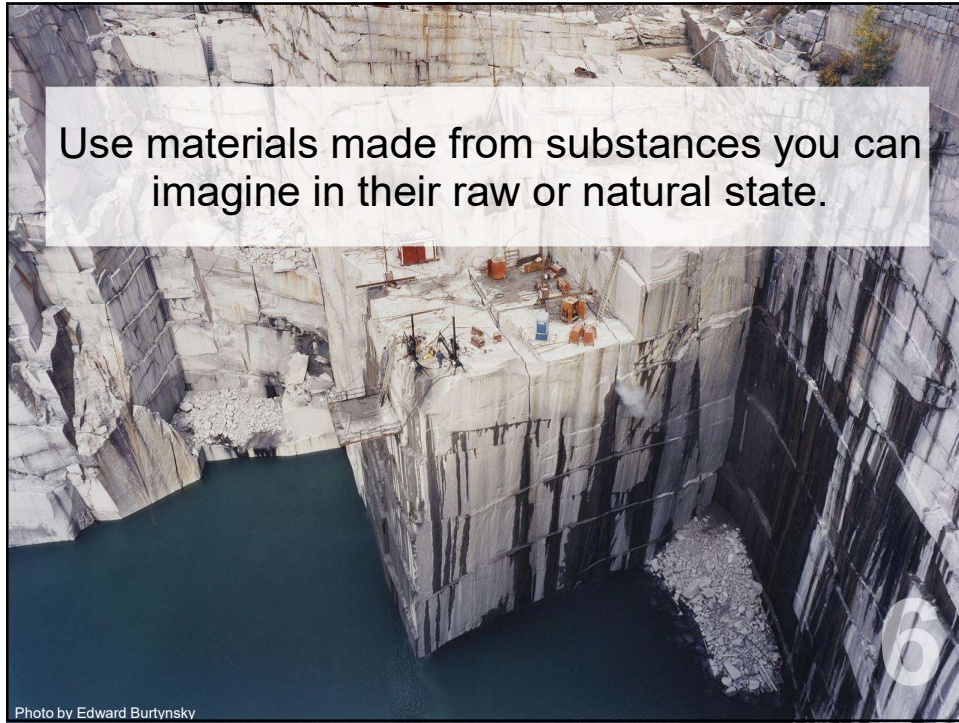
Source:

Tom Lent / HBN and Robin Guenther / P+W
ASID Foundation/HBN Webinars 2013









Question materials that make health claims



8

Use carbohydrate-based materials
when you can.

9



Regard "space-age" materials with skepticism.



Good things are twice as good in Cellophane

DU PONT Cellophane

BETTER THINGS FOR BETTER THINGS... THROUGH SCIENCE

ARMSTRONG FROM THE COLLECTIONS OF THE LIBRARY OF CONGRESS, GEOGRAPHY AND MAP DIVISION

Armstrong Form (page—9" x 9", 12" x 12", 18" x 18", 24" x 24")
 Pattern: Printed on one side as to be finished. 100/1000—Custom: 350/450
 Available in 1/8" and 1/4" thicknesses. 100/1000—Custom: 350/450
 Available in 1/8" and 1/4" thicknesses. 100/1000—Custom: 350/450
 Available in 1/8" and 1/4" thicknesses. 100/1000—Custom: 350/450

EMBOSS AND CUSTOM EXCELION TILE
 (12" x 12" x 3/16")
 Available in a variety of pattern series and colors. Armstrong Embossed Exclion Tile offers a wide selection of today's most popular textured surface effects. With the exception of the Custom series (Excelsior, San Miguel, Tonalita, and Romford Brick), these handsome embossed stylings are offered in the same economy price range as smooth surfaced Exclion Tile.

STANDARD (Smooth Surface) EXCELION TILE
 (12" x 12" x 3/16")
 Available in a wide array of color combinations and design effects. Armstrong Standard (Smooth Surface) Exclion Tile is representative of today's most widely used, specially formulated, pure vinyl resin flooring materials. Specialized finishes include embossed stylings, as well as many practical advantages include excellent durability and resistance to grease, oil, alkali, and household chemicals.

Smooth surface stylings are shown on page 17.

CUSTOM DECORSO
 (12" x 12" x 3/16")
 Custom Decorsos are available in a wide variety of colors and designs. They are available in the same economy price range as smooth surfaced Exclion Tile.

CUSTOM SAN MIGUEL
 (12" x 12" x 3/16")
 Custom San Miguel tiles are available in a wide variety of colors and designs. They are available in the same economy price range as smooth surfaced Exclion Tile.

TORTOISE SHELL
 (12" x 12" x 3/16")
 Tortoise Shell tiles are available in a wide variety of colors and designs. They are available in the same economy price range as smooth surfaced Exclion Tile.

1970 (Section 3) Sweets

SECRET FORMULAS
are better tasted than told.
open happiness™

The secret ingredient is fruit.

If they won't tell you what's in it,
you probably don't want what's in it.

SUN-RIPE
Fruit Plus
Veggies
Strawberry
Banana

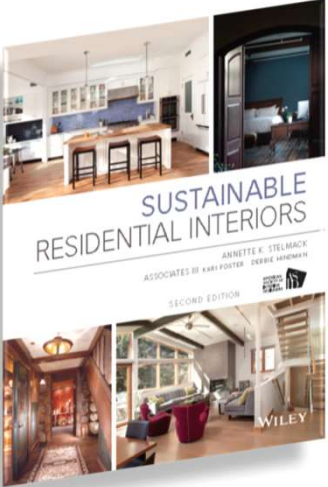
Made with real fruit goodness

12

My Journey

- ✓ Start small
- ✓ Ask questions, often + respectfully
- ✓ Embrace education, constant
- ✓ Prioritize for highest impact
- ✓ Leverage relationships, lessons learned from others

www.metaphorcalplatibus.com



"Don't poison people, tell the truth, and let them know.

Don't tell me it's impossible to make a safe, healthy interior. Instead tell me you weren't able to do it because you aren't able to find materials and products to create a healthy space."

William McDonough ~ MBDC

"An essential guide and much needed tool, it will enable interior designers to create homes within our communities that are better places for our current and next generations." – Linda Sorrento, LEED Fellow, FASID, IIDA Principal Sustainable Practice – Sorrento Consulting, LLC

Call or Email Questions To:



Annette K. Stelmack

Healthy, High Performing Interiors :: Author :: Educator
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INSPIRIT
Healthy by Design