



THE RED LIST

A Case for Healthy Building Products

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The Center for Sustainable Landscapes – December 2012

One of the Greenest Building in the World



Living Building Challenge



PLACE

WATER

ENERGY

HEALTH &
HAPPINESS

MATERIALS

EQUITY

BEAUTY

Envisions a Society that is Culturally Rich, Socially Just, and is Ecologically Restorative

MATERIALS

RED LIST



10



There are temporary exceptions for numerous Red List items due to current limitations in the materials economy. Refer to the v3.1 Materials Petal Handbook for complete and up-to-date listings.

The project cannot contain any of the following Red List materials or chemicals:²³

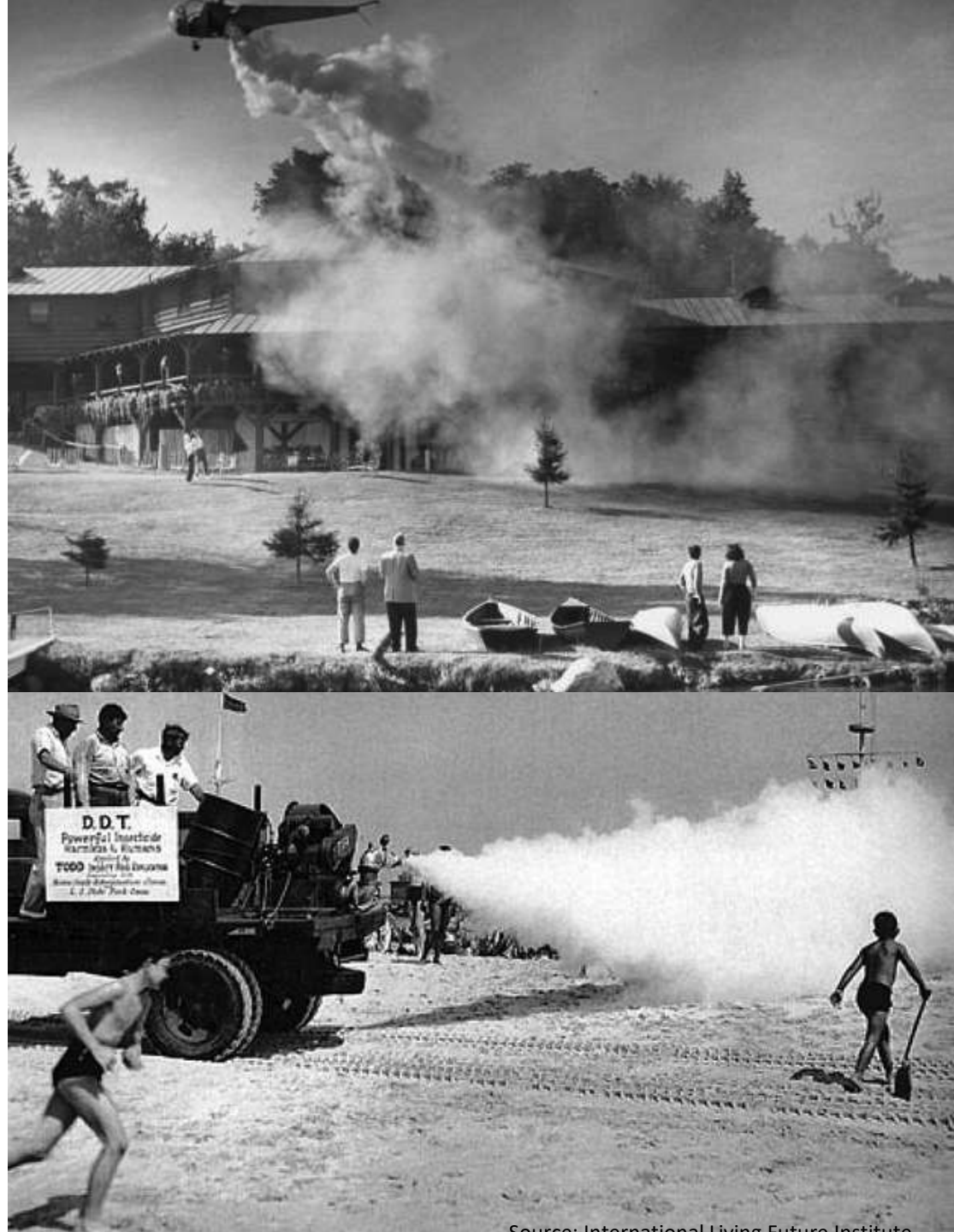
- Alkylphenols
- Asbestos
- Bisphenol A (BPA)
- Cadmium
- Chlorinated Polyethylene and Chlorosulfonated Polyethylene
- Chlorobenzenes
- Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)
- Chloroprene (Neoprene)
- Chromium VI
- Chlorinated Polyvinyl Chloride (CPVC)
- Formaldehyde (added)
- Halogenated Flame Retardants (HFRs)
- Lead (added)
- Mercury
- Polychlorinated Biphenyls (PCBs)
- Perfluorinated Compounds (PFCs)
- Phthalates
- Polyvinyl Chloride (PVC)
- Polyvinylidene Chloride (PVDC)
- Short Chain Chlorinated Paraffins
- Wood treatments containing Creosote, Arsenic or Pentachlorophenol
- Volatile Organic Compounds (VOCs) in wet-applied products²⁴

²³ A link to the list of CAS registry numbers that correspond with each Red List item is available in the v3.1 Materials Petal Handbook.

²⁴ Wet-applied products (coatings, adhesives, sealants) must not exceed specific VOC levels. Refer to the v3.1 Materials Petal Handbook for details.



AWARENESS EQUALS CHANGE



NO EFFECTIVE CHEMICAL REGULATION IN THE US

83,000 chemicals in the EPA inventory

Toxic Substances Control Act (TSCA):

In 1976, 62,000 existing chemicals “grandfathered in”

Of these, only 200 have been inventoried

Only 5 of these chemicals have been partially restricted:


Asbestos

PCBs

Dioxins

CFCs

Hexavalent Chromium



“There is no toxicity data on 4 out of 5 of the most commonly used chemicals”

-Paula Laporte

CHEMICALS ARE SYNERGISTIC

When combined together their impact heightens. It shouldn't take a chemist on your project to determine if the materials we specify are safe for humans or not.

Photo Courtesy Flickr user NIAID

Source: International Living Future Institute

Center for Sustainable Landscapes

One of the Greenest Buildings in the World



Photo © Denmark Photography, Inc.

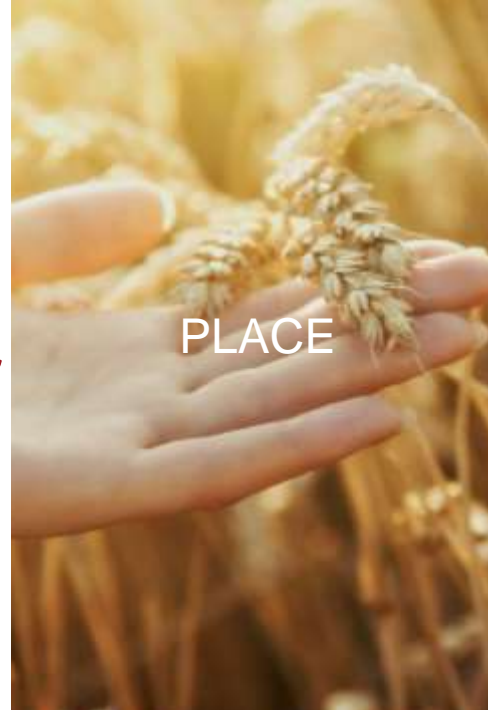


LIVING
BUILDING
CHALLENGE
2.1



SITES
CERTIFIED
SUSTAINABLE SITES INITIATIVE™





PLACE



WATER



ENERGY



HEALTH &
HAPPINESS



MATERIALS



EQUITY



BEAUTY



A photograph of two young children on a light-colored floor. On the left, a child with dark hair wearing a green polo shirt is leaning forward, reaching out with their right hand towards a colorful ball. On the right, a child with light hair wearing a red shirt is also leaning forward, looking at the ball with an open mouth. The ball is a complex, spherical toy made of pink plastic with a lattice-like structure, containing several smaller, solid-colored balls in red, yellow, blue, and teal. A semi-transparent text box is overlaid on the left side of the image, containing the text 'EXPOSURE ROUTES' and a list of exposure routes.

EXPOSURE ROUTES

Inhalation

Dermal Contact

Ingestion

- Hand-to-Mouth

- Dust

- Diet

EXPOSURE STAGES

Raw Material Extraction

Manufacturing

Fenceline Communities

Construction Workers

Building Occupants

End-of-Life



We demand to know what you
are forcing us to breathe!

Exigimos saber lo que
están obligando a resp





FORMALDEHYDE IS

PERVASIVE IN BUILDING
PRODUCTS

KNOWN ALIASES:

Formalin

Methyl Aldehyde

Methyl Oxide

FOUND IN:

Composite woods

Insulation

Paints

Textiles

Countertops

Resins, Coatings, Glues...



HEALTH EFFECTS OF FORMALDEHYDE

Asthmagen

Carcinogen

Eye, skin and respiratory irritant

Nervous system damage



MERCURY

FOUND IN:

Wiring & switches

Electronic equipment

Lighting (CFLs)

Paint

Batteries

Fossil fuel combustion

HEALTH EFFECTS:

Impaired neurological development

Memory loss

Kidney damage and respiratory failure (high exposure)



WHAT IS WRONG WITH PVC?

75% of PVC used in construction materials

14 billion pounds of PVC produced per year in North America.

Dioxin, ethylene dichloride and vinyl chloride created in PVC production, causing:

- Cancer
- Endocrine disruption
- Endometriosis
- Neurological damage
- Birth defects & impaired child development
- Reproductive and immune system damage

The background of the slide is a close-up, grayscale image of a quilted fabric. The fabric features a repeating pattern of large, rounded, wavy shapes created by deep stitching, giving it a textured, three-dimensional appearance.

FLAME RETARDANTS

California Rule TB-117 introduced in 1970s

Required all materials inside furniture meet certain fire safety requirements and created nationwide market for chemical flame retardants

FLAME RETARDANTS

Flame retardants like polybrominated diphenyl ethers have been linked to cancer, fertility issues and lower IQs in children

2012 Chicago Tribune article found chemicals used provided no meaningful protection against the start or spread of fire



VOLATILE ORGANIC COMPOUNDS (VOCs)

FOUND IN:

Paint

Furniture

Carpet

Adhesives

Sealants

HEALTH EFFECTS:

Headaches

Memory impairment

Respiratory, allergic, and immune impairments in children

BPA

FOUND IN:

Clear plastic containers

Grouts and sealants

Fluid applied flooring

HEALTH EFFECTS:

Prostate cancer


Breast cancer

Reproductive failure

NOTE:

90% of baby umbilical cords have BPA. Reproductive failure reported in Chinese male factory workers






Traces of BPA – used in
canned food, beverages,
paper receipts and dental
sealants – are found in
virtually every U.S. adult and
child

Source: Environmental Health News
Photo source: Flickr user ben_osteen

THE PRECAUTIONARY PRINCIPLE

The following depicts some examples of the time lag between health and environmental risk identification and regulatory action.

Element	Risk Identified	Regulatory Action Taken	Time Delay
Lead (Paint)	1949	1970	21 years
Lead (Gasoline)	1920	1986	66 years
Dichloro-Diphenyl-Trichloroethane (DDT)	1962	Worldwide agricultural ban in 1978	16 years
Asbestos (VAT)	1970	1989	19 years
PVC w/ DEHP, DBP, BBP, DINP, DIDP, DNOP	2003	California bans the use of these six plasticizers in children's toys in 2007	?



DO WE NEED TRANSPARENCY IN THE BUILDING PRODUCTS INDUSTRY?

Declare.



INTERNATIONAL
LIVING FUTURE
INSTITUTE™



Source: International Living Future Institute

What is Declare?

An ingredients label for building products

An endeavor to increase transparency in the materials marketplace

An opportunity for manufacturers to join the restorative building movement

A support resource for Living Building Challenge project teams



Declare.

Your Product
Your Company

Final Assembly: City, State, Country
Life Expectancy: 000 Years
End of Life Options: Recyclable (42%), Landfill (58%)

Ingredients:

Your First Component: Sustainably Sourced Ingredient (Location, ST), **Non-Toxic Ingredient** (Location, ST); **Your Second Component: Living Building Challenge Red List, Proprietary Ingredient¹, US EPA Chemical of Concern**

¹LBC Temp Exception #10-E4 Proprietary Ingredients <1%

Living Building Challenge Criteria:

XXX-0000	EXP. 01 JAN 2018
VOC Content: 0 g/L	VOC Emissions: CDPH Compliant
Declaration Status	<input type="checkbox"/> LBC Red List Free
	<input checked="" type="checkbox"/> LBC Compliant
	<input type="checkbox"/> Declared

MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY
INTERNATIONAL LIVING FUTURE INSTITUTE™ declareproducts.com

Shouldn't we demand the same information from **the materials we buy** as the food we eat?



The background image is a collage. It features several open paint cans with various colored paints (brown, blue, green). A light-colored wooden plank is placed diagonally across the center. A blue cable is visible in the lower right. A semi-transparent white text box is overlaid on the upper left portion of the image.

Declare labels answer three simple questions:

Where does a product come from?

What is it made of?

Where does it go at the end of its life?

Declare.



Four Different Paradigms for Interacting with the World

Extractive	Less Bad	Do Good	Regenerative
About Me	About Us Inter- connectedness	About Us Reciprocity	About Us System
Fragments	Fragments Stabilize them	Fragments Improve them	Whole

Source: Carol Sanford

