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

Photos © Denmarsh Photography, Inc.
Envisions a Society that is Culturally Rich, Socially Just, and is Ecologically Restorative
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:

- 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 products.

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

Source: International Living Future Institute
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

Source: International Living Future Institute
“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.

Source: International Living Future Institute
Center for Sustainable Landscapes
One of the Greenest Buildings in the World
HEALTH & HAPPINESS
MATERIALS
EQUITY
SOURCE: INTERNATIONAL LIVING FUTURE INSTITUTE
# RED LIST TRANSLATED

800 CHEMICALS

Source: International Living Future Institute
EXPOSURE ROUTES

Inhalation
Dermal Contact
Ingestion
- Hand-to-Mouth
- Dust
- Diet

Source: International Living Future Institute
EXPOSURE STAGES
Raw Material Extraction
Manufacturing
Fenceline Communities
Construction Workers
Building Occupants
End-of-Life

Source: International Living Future Institute
FORMALDEHYDE IS PERVERSIVE IN BUILDING PRODUCTS

KNOWN ALIASES:
Formalin
Methyl Aldehyde
Methyl Oxide

FOUND IN:
Composite woods
Insulation
Paints
Textiles
Countertops
Resins, Coatings, Glues…

Source: International Living Future Institute
HEALTH EFFECTS OF FORMALDEHYDE

Asthmagen
Carcinogen
Eye, skin and respiratory irritant
Nervous system damage

Source: International Living Future Institute
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)

Source: International Living Future Institute
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

Source: International Living Future Institute
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

Source: International Living Future Institute
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.

Source: International Living Future Institute
VOLATILE ORGANIC COMPOUNDS (VOCs)

FOUND IN:
- Paint
- Furniture
- Carpet
- Adhesives
- Sealants

HEALTH EFFECTS:
- Headaches
- Memory impairment
- Respiratory, allergic, and immune impairments in children

Source: International Living Future Institute
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

Source: International Living Future Institute
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.

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

Source: International Living Future Institute
DO WE NEED TRANSPARENCY IN THE BUILDING PRODUCTS INDUSTRY?

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

Source: International Living Future Institute
Shouldn’t we demand the same information from the materials we buy as the food we eat?

Source: International Living Future Institute
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?

Source: International Living Future Institute
Four Different Paradigms for Interacting with the World

<table>
<thead>
<tr>
<th>Extractive</th>
<th>Less Bad</th>
<th>Do Good</th>
<th>Regenerative</th>
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<tbody>
<tr>
<td>About Me</td>
<td>About Us</td>
<td>About Us</td>
<td>About Us</td>
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<td>Fragments</td>
<td>Inter-</td>
<td>Reciprocity</td>
<td>System</td>
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<td>Fragments</td>
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<td>Whole</td>
</tr>
<tr>
<td></td>
<td>Stabilize them</td>
<td>Improve them</td>
<td></td>
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</tbody>
</table>

Source: Carol Sanford