Selecting Healthier Carpet, Flooring & Furniture
Tips and Tools for Purchasers | Oct 14, 2020
Architecture
Engineering
Planning
Center for Environmental Health

A non-profit organization dedicated to protecting public health from exposures to toxic chemicals.

The Center for Environmental Health works with large purchasers to utilize their buying power to incentivize the production of environmentally preferable products.

www.ceh.org/procurement
CEH: Moving the market toward healthier products

www.ceh.org/procurement
Indoor Air Quality

• Most Americans spend up to 90% of their time indoors

• Indoor air can have higher levels of pollutants than outside levels

• Impacts health, comfort, wellbeing, and productivity
Indoor Air Affects Cognitive Function

Results:

Cognitive scores were 61% higher on the Green building day.

101% higher on the two Green+ building days.

Compared to the Conventional building day.
Chemical Policy in the US
Most Chemicals in the U.S. are **Not** Regulated

- 82,000 registered in the United States
- 650 monitored through EPA's Toxic Release Inventory
- 200 tested for threats to human health + safety
- 5 banned

The EPA must prove a chemical poses an "unreasonable risk" before it can be regulated.
Chemical “Whack-a-Mole”
It’s Not a Game….It’s our Health

- Kid’s PJs
  - Chlorinated Tris
  - Brominated Tris
  - Phosphates

- Furniture, baby products
  - Chlorinated Tris
  - PentaBDE
  - Firemaster 550

MUTAGEN
TOXICITY
OBESITY, ANXIETY
Regrettable Substitution:

Decabromodiphenyl ether

Concerns:
- Persistence
- Bioaccumulation
- Toxicity

Decabromodiphenyl ethane

Concerns:
- Persistence
- Bioaccumulation
- Toxicity
EVALUATING TENS OF THOUSANDS OF INDIVIDUAL CHEMICALS IS UNWORKABLE
BUT ADDRESSING **SIX GROUPS** OF CHEMICALS OF CONCERN IS MANAGEABLE
Endocrine (Hormone) Disrupting Chemicals

- Mimic, block, or change hormones, even at minute doses
- Diabetes, obesity, repro. harm, promote cancer, and other diseases
- Fetuses, babies and children vulnerable
- Exposure during critical developmental stages can lead to lifelong health impacts
A Healthy Immune System is Needed to Fight Off COVID-19

April 23, 2020

Endocrine-disrupting chemicals weaken us in our COVID-19 battle:
Linda S. Birnbaum, Jerrold J. Heindel

“We are an unhealthy nation—and many of our elevated disease rates are linked to environmental chemicals. COVID-19 is bringing into sharp focus the need to prevent this widespread exposure.”

Associated Health Effects

- Decreased memory and learning
  - Reduced IQ
  - Hyperactivity
- Obesity
- Alters thyroid hormone
- Respiratory problems
- Diabetes
- Decreased fertility
- Birth defects
- Cancer
- Immune System Problems
- Elevated Total Cholesterol
How Are We Exposed?

- Inhalation
- Ingestion of contaminated dust particles, food, water, materials...
- Dermal
- Absorption across the placenta
- Breast milk
- Frequent hand-to-mouth activity
Occupational Exposures

- Fire Fighters/First Responders
- Chemical Manufacturing Workers
- Foam Workers (manufacturers, installers and recyclers)
- Upholsterers
Furniture
The “Hazardous Handful”

- Flame Retardants
- Fluorinated Stain Treatments
- Antimicrobials
- VOC’s (including Formaldehyde)
- PVC
## “Hazardous Handful” Locations

<table>
<thead>
<tr>
<th>PVC</th>
<th>VOCs</th>
<th>Antimicrobials (not as preservative)</th>
<th>Fluorinated Chemicals</th>
<th>Flame Retardants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabrics / moisture barriers</td>
<td>Furniture</td>
<td>Fabrics</td>
<td>Fabrics</td>
<td>Foam</td>
</tr>
<tr>
<td>Furniture plastic parts</td>
<td>Fabrics</td>
<td>High touch surfaces such as handles, arm caps, etc.</td>
<td>Carpet</td>
<td>Barrier fabric</td>
</tr>
<tr>
<td>Table Edge banding</td>
<td>Flooring</td>
<td></td>
<td>Resilient flooring</td>
<td>Decking material</td>
</tr>
<tr>
<td>Acoustic ceiling tiles</td>
<td>Adhesives</td>
<td></td>
<td>Furniture</td>
<td>Fabrics</td>
</tr>
<tr>
<td>Carpet Tile</td>
<td>Insulation</td>
<td></td>
<td>Grout</td>
<td>Plastic parts</td>
</tr>
<tr>
<td>Window coverings</td>
<td>Paint</td>
<td></td>
<td>Floor coatings</td>
<td>Insulation</td>
</tr>
<tr>
<td>Wall base/flooring</td>
<td>Cabinetry</td>
<td></td>
<td></td>
<td>Paint/coatings</td>
</tr>
<tr>
<td>Wall protection</td>
<td>Composite wood products</td>
<td></td>
<td></td>
<td>Clear finishes/sealants</td>
</tr>
</tbody>
</table>

**As a Preservative:**
- Adhesives
- Paints
- Finishes
- Grout
- Floor coatings
Chemical Flame Retardants

Health Concerns:
• Reproductive
• Neurodevelopmental-Reduced IQ
• Immune system impacts
• Cancer
• Flame retardants migrate out of products: found in humans, breast milk, dust, pets, wildlife, environment
• Do not reduce number or severity of fires in typical furniture

Recommendation:
• Specify products that do not contain FRs and are labeled as such
Where are FRs Found?

- Furniture Foam
- Building Insulation
- Textiles
- Rebonded Carpet Padding
- Fabric Blinds
- Paints and Coatings
- Transportation Interiors
- Wire and Cable Sheathing
Fluorinated Compounds (PFAS) “Forever Chemicals”

Health Impacts:
• Kidney and testicular cancer, thyroid disruption, elevated total cholesterol, obesity

Environmental Impacts:
• Extremely persistent in environment and may bioaccumulate in people and wildlife
• Migrates out of products
• Exposed via ingestion of contaminated materials, food, (including breast milk) and occupational

Recommendation:
• Avoid stain or water repellant treatments that contain PFAS
• Buyer Beware of claims of “Safer”
Common Uses of PFAS

- Carpets
- Carpet Cleaning Products
- Furnishings
- Adhesives and Sealants
Volatile Organic Compounds (VOCs)

Health Effects:
- Respiratory, cancers, decreased fertility

Environmental Impacts:
- Negatively affects indoor air quality
- Exposure via inhalation, dermal, or occupational

Recommendations:
- CA Section 01350 (CA Dept. of Public Health) or SCS Indoor Advantage Gold or Greenguard Gold
Antimicrobials

Health Impacts:
• Endocrine problems, reproductive changes and possible increased allergies in kids.

Environmental Impacts:
• Limited evidence that antimicrobials added to furnishings reduces spread of infection
• Exposed through ingestion, inhalation and dermally
• Can create “super bugs”

Recommendation:
• Avoid products with antimicrobials.
• Understand marketing claims

Polyvinyl Chloride (PVC) / Vinyl

Problematic throughout life cycle:
• Manufacture
• Use
• End-of-life

Health Effects:
• Neurodevelopmental, endocrine disruptor, birth defects, reproductive, cancer

Recommendation:
• Avoid products with PVC
• Small components exemption: > 1% of product by weight
No Safe Options for Disposal

- Extend Product Life When Possible
  - Redeploy
  - Reupholster/ Refurbish/ Remanufacture

- Extending Life Has Other Benefits:
  - Energy Savings
  - Waste to Energy/Landfill Avoidance
  - CO2 Reduction
  - Natural Resource Savings
  - Zero Waste Reduction Goal
Ecolabels & Standards: Furniture & Fabric

Disclosure:

Single-attribute:
- Air Emissions
- Recycled Content
- Wood
- Chemicals of concern

Multi-attribute:

- HPDC
- Declare
- Level
- Cradle to Cradle
- FSC
- Greenguard Gold
GIGA: Mindful Materials and Matter
ANSI/BIFMA e3-2019
A New Tool

Credit 7.4.4:

• Targeted Chemical Elimination

• New criterion restricts the “Hazardous Handful”:
  • Flame retardants
  • PFAS
  • Antimicrobials
  • PVC
  • Formaldehyde

• Can apply to level 1, 2, or 3 products

Specify Products That Meet 7.4.4
Building Certifications: Furniture Contributions

- LEED HC v4.1:
  - MR credit: Furniture & Medical Furnishings
- WELL v2:
  - X05: Enhanced Material Restrictions
  - X08: Materials Optimization
- Living Building Challenge (LBC) v4.0:
  - Imperative 12: Responsible Materials
  - Imperative 13: Red List
- LBC v4.0 Material Petal
The Center for Environmental Health (CEH) created this guide to help furniture purchasers identify safer furniture and fabrics without key chemicals of concern.

The products in this document have been self-reported by the manufacturer as being compliant with restrictions for the following chemicals/materials of concern (aka the "Hazardous Handful"): 

- Formaldehyde and other Volatile Organic Compounds (VOCs) emissions
- Antimicrobials
- Flame retardant chemicals
- Polyvinyl chloride (PVC)
- Per- and poly-fluorinated chemicals used as stain/water/oil resistant treatments

Furniture products are listed on sheet/tab 2 and fabrics are listed on sheet/tab 3.

**How to use this file:**

This file was created to make it easy for you to find the office furniture you are looking for. This Spreadsheet is sortable and filterable by Manufacturer, Product Type, Product Name, and Availability on NASPO contract.

1. To view and use the product spreadsheet, click either the All Furniture or All Fabrics sheet/tab below
2. Browse the comprehensive listing

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### Healthier Furniture

**A Guide for Purchasing Furniture Free of the Hazardous Handful Chemicals**

Last updated: 07/10/2020

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product Type</th>
<th>Product Name</th>
<th>Exceptions/Comments</th>
<th>Available on NASPO Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunlocke</td>
<td>DESKS &amp; TABLES</td>
<td>Silia Private Office</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Gunlocke</td>
<td>SEATING</td>
<td>Sojourn Lounge</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Gunlocke</td>
<td>DESKS &amp; TABLES</td>
<td>Sojourn Occasional</td>
<td></td>
<td>NO</td>
</tr>
<tr>
<td>Gunlocke</td>
<td>SEATING</td>
<td>Stretto Guest Seating</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Gunlocke</td>
<td>SEATING</td>
<td>Tia (Guest/Side/Stool)</td>
<td></td>
<td>NO</td>
</tr>
</tbody>
</table>
Manufacturers with Products Free of the Key Chemicals of Concern (partial list only)
GreenScreen Certified™ for Furniture & Fabrics

1. Certifies to Kaiser Permanente’s EPP Furniture & Fabrics standard

2. Restricts classes of chemicals of concern to human health and the environment, including phthalates, bisphenols, PFAS, azo dyes, antimicrobials, and flame retardants along with California Proposition 65 chemicals, other hazardous chemicals, & PVC

3. Three levels of certification, Bronze to Gold, certify to increasingly stringent material health criteria starting with a restricted substances list and increasing to an evaluation of each ingredient in the product.

4. Learn more – webinar October 28
   https://www.greenscreenchemicals.org/resources/entry/webinar-gsc-furniture-fabrics
Resilient Flooring & Carpet
Why Flooring & Carpet?

• High volume, high turnover products
• Major source of waste
• Significant source of chemicals of concern
• Opportunity for exposure across lifecycle
• Products and maintenance impact indoor air quality and health
Frameworks Consulted

- Certified Indoor Air Quality
- Forest Stewardship Council
- UL
- Cradle to Cradle
- Greenguard
- CRI
- Declare
- HomeFree
- HPDC
- Blauer Engel
- FloorScore
- HBN
Frameworks Consulted
CURRENTLY REVIEWING
Meets Health Care Without Harm Safer Chemicals criteria

- Carpet
- Resilient flooring
- Medical products

HOW IT WORKS
A TRANSPARENT PROCESS

PRODUCT VETTING

- Initial application to determine eligibility
  - Criteria developed by Health Care Without Harm and Practice Greenhealth
- Vetting and licensing agreement
- Submission of disclosures and claim substantiation
- Pass/Fail analysis
- Approval to use the seal for 3 years

NEED MORE INFO?

www.greenhealthapproved.org
or contact
info@greenhealthapproved.org
Product Scope

Resilient Flooring
• All resilient flooring except fluid applied polymer floors and concrete.
• Excludes floor leveling compounds.

Carpet
• All carpet tile, broadloom carpet, and carpet padding, including every part of the carpet (e.g., face fiber, backing and adhesives).
• Excludes area rugs, outdoor carpet and rugs.
## Restrictions & Requirements

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkylphenols</td>
<td>Fly ash</td>
<td>Proposition 65 chemicals</td>
</tr>
<tr>
<td>Antimicrobial agents</td>
<td>Formaldehyde</td>
<td>PVC and other chlorinated polymers</td>
</tr>
<tr>
<td>Bisphenol A &amp; analogs</td>
<td>Metals</td>
<td>Recycled content</td>
</tr>
<tr>
<td>Bitumen</td>
<td>Nanomaterials</td>
<td>Recycled tires</td>
</tr>
<tr>
<td>Caprolactam</td>
<td>Ortho-phthalates</td>
<td>Siloxanes</td>
</tr>
<tr>
<td>Dyes and pigments</td>
<td>PFAS</td>
<td>Styrene Butadiene Rubber (SBR)</td>
</tr>
<tr>
<td>Epichlorohydrin</td>
<td>PBT chemicals</td>
<td>Volatile Organic Compounds (VOCs)</td>
</tr>
<tr>
<td>Face fiber</td>
<td>PAHs</td>
<td></td>
</tr>
<tr>
<td>Flame retardants</td>
<td>Polyurethane</td>
<td></td>
</tr>
</tbody>
</table>

- **Flooring & Carpet**
- **Carpet-specific**
Manufacturers with Greenhealth Approved Products

Armstrong Flooring
Mohawk Group
Forbo Flooring Systems
Mondo Contract Flooring
Tarkett
nora by Interface
Patcraft
Roppe
Shaw Contract
Mannington Commercial
Teknoflor
Wineo Purline
Upofloor
Carpet & Flooring Resources from CEH

Technical Specifications for Carpet

All carpet products supplied under this Price Agreement shall comply with the restrictions on the following chemicals of concern. Verification of compliance shall be provided to [purchasing entity] prior to contract award.

I. Scope

The following requirements apply to carpet tile, broadloom carpet, and carpet padding in order to comply with this agreement.

Technical Specifications for Resilient (Hard Surface) Flooring

All flooring products supplied under this Price Agreement shall comply with the restrictions on the following chemicals of concern. Verification of compliance shall be provided to [purchasing entity] prior to contract award.

I. Scope

The following requirements apply to all flooring except carpet, fluid applied floors, concrete and floor leveling.

Model technical specifications
Spreadsheet of products
Customized technical assistance available on request!

www.ceh.org/flooring

**Healthy Resilient Flooring**

This Spreadsheet is sortable and filterable by Manufacturer, Product Type, Product Name, and Level. Click and highlight Row 3, then click on the filter button and select "Create new temporary filter" to create a filterable and sortable document.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product Type</th>
<th>Product Name</th>
<th>Exceptions/Comments</th>
<th>Silver or Gold Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armstrong</td>
<td>TILE</td>
<td>Migrations</td>
<td></td>
<td>Silver</td>
</tr>
<tr>
<td>Armstrong</td>
<td>TILE</td>
<td>Striations</td>
<td></td>
<td>Silver</td>
</tr>
<tr>
<td>Forbo</td>
<td>SHEET LINOLEUM</td>
<td>Marmoleum 2.5mm</td>
<td></td>
<td>Silver</td>
</tr>
<tr>
<td>Forbo</td>
<td>SHEET LINOLEUM</td>
<td>MCS 2.0mm</td>
<td></td>
<td>Silver</td>
</tr>
</tbody>
</table>
Building Certifications: Flooring Contributions

• WELL v2:
  • X05: Enhanced Material Restrictions
  • X08: Materials Optimization

• Living Building Challenge (LBC) v4.0:
  • Imperative 12: Responsible Materials
  • Imperative 13: Red List

• LBC v4.0 Material Petal
Flooring Maintenance

- Stripping and waxing does contribute to respiratory issues for workers and staff
  - Consider wax-free products
- Consider flooring products adjacencies for optimal maintenance
- Confirm manufacturer offers green cleaning protocols.
Case Study: UCSF Benioff Children’s Hospital, Oakland

- Emergency Department - linoleum vs. nora rubber flooring:
  - Existing flooring maintenance triggered health issues for staff
  - Move to optimally maintained flooring eliminates staff leaving shifts due to health issues
Your Organization as a Tool for Change

*Purchasers and Specifiers can influence the market faster than regulations or legislation*
CEH Resources

- Webinars
- Letter for Suppliers
- RFI / RFP/Technical Specifications
- List of Preferable Products
- Survey of Manufacturers
- Product Testing
- Customized Consulting and Technical Assistance
Other Tips

General Tips
• Identify healthier products and block non-EPP products
• Use contract extensions as opportunity for change
• Provide reasonable timelines for supplier conformance
• Be willing to consider new suppliers if needed
• Piggyback on “green” buying agreements

Product Specific Tips
For Carpeting/Flooring:
• Ask your manufacturers to apply for Greenhealth Approved
• Put Greenhealth Approved in your RFPs and/or contracts

For Furniture:
• Put CEH/HCWH specifications in RFPs and/or contracts
• Request furniture products that meet the BIFMA 7.4.4 criterion (Targeted Chemical Elimination)
• Request furniture products that meet Healthy Interiors or Greenscreen certified
Next Steps

- Share this information with appropriate persons in your organization
- Contact CEH to discuss next steps for your organization

You are on your way!
Additional Resources

- CEH Procurement Resources
- CEH Healthier Foodware Database
- CEH Antimicrobials in Furnishings webinar
- Healthcare Without Harm/Practice
  Greenhealth: Furniture Flooring Carpet
- Green Science Policy Insitute: Six Classes Videos
- San Francisco Approved
- Healthy Building Network: Eliminating Toxics in Carpet: Lessons for the Future of Recycling
Reducing Our Toxic Dust Cloud

“We’re not dirty. We’re just toxically challenged!”
Questions? Contact us!

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