BUILDING MATERIALS THAT ARE KIND ON THE PLANET

ECO-DESIGN ADVISOR SERIES NO.5

TOXIC COCKTAIL

Your home may not be quite the sanctuary you imagine. Many common building materials contain substances that can harm our skin and lungs – solvents in paints, chemicals in treated timber, glues in particleboards and carpets. In this factsheet you will find information about some of the materials in this toxic cocktail, plus alternative products to consider when you build or renovate.

Choose carefully

There are healthy alternatives to every part of the building process, so before choosing any product, ask to see the material safety data sheet. One thing particularly to look out for are volatile organic compounds (VOCs), found in structural components, cladding, textiles and furniture. Examples are solvents in paint and wallpaper and upholstery foam, treatments to prevent timber rotting and carpet glues to hold fibres, backing and underlay together.

Volatile organic compounds give off breathable chemical vapours that can be found in high concentrations indoors, contaminating the air. A serious and common example in New Zealand is formaldehyde, a known carcinogen. It may be present in the shiny finish on your floor, in the engineered timber used to make kitchen cabinets, the glue holding your wallpaper to the wall, the cladding in your couch. It leaches from the raw edges of composite wood particle products such as particle board, MDF and plywood used in cabinets, furniture and joinery.

Rapid dispersal

Fortunately, most volatile organic compounds are most noticeable and at their highest concentrations immediately after a house has been built or renovated. That “new” smell some people find so attractive is in fact a chemical concoction best avoided. It may seem a lot to ask, but consider holding off moving into your new or renovated home for a few weeks (a month to be on the safe side) to let the concentrations of volatile organic compounds subside.

Some people produce reactions such as respiratory problems, headaches, tiredness, coughing sneezing, dizziness and eye, nose, throat and skin irritations. Reactions may be instant or cumulative.

Garage

Inhaling even small amounts of carbon monoxide can produce many of these symptoms. And the source of carbon monoxide? The cars we park in garages attached to the house. A simple solution is to ensure the door between the garage and the rest of the house is well sealed. Better still, have two doors between the garage and the body of the house.

Look for logos

Always look for environmental benchmarks or ratings such as Forest Steward Council, sustainably treated timber marks or the Environmental Choice logo when buying products. The choices you make affect your health and that of your family as well as having an impact on the environment.

Materials	The problem:	Consider using these instead:
Coloured paint finishes	▪ pigments based on metal oxides such as mercury, lead, cadmium or chromium ▪ synthetic organic pigments derived from harmful petrochemical by-products such as phenols, benzene, toluene and xylene ▪ solvent based products	▪ water based paints with low or no VOCs ▪ lime wash paints ▪ silicate, casein and tempera based paints ▪ latex based paints ▪ citrus or tree oils, natural turpentine finishes
Clear coatings	▪ polyurethane can give off VOCs for years	▪ solvent free linseed oil and beeswax ▪ tung oil
Flooring surfaces	▪ vinyl floors ▪ plastic wood laminates	▪ natural linoleum or cork tiles ▪ recycled glass tiles and ceramic tiles ▪ exposed polished concrete ▪ natural timber with a natural finish
Inbuilt cabinets	▪ resins used to make engineered, reconstituted timber or composite wood products such as MDF and plywood contain formaldehyde	▪ solid timber ▪ seal problem materials with low -emission finishes to trap VOCs
Wall coverings	▪ vinyl wallpaper - PVC and formaldehyde	▪ textile-based wall coverings may be are more breathable and less toxic
Carpets	▪ are a composite product made up of the fibres, glue, backings and underlay made from synthetic products and toxic chemicals ▪ VOCs from each different component blend to create further VOC issues ▪ dust mites	▪ carpet backings and underlay made of cotton wadding, felt, natural latex or jute ▪ natural pigmented carpet ▪ textiles using plant-based dyes ▪ non-fixed carpet, rugs and floor coverings which can be aired
Timber	▪ the most commonly used toxic chemical timber treatments light organic solvent preservative (LOSP) and copper chrome arsenate (CCA) ▪ they are applied to protect the timber against insect, mould and fungi and leach if they get wet	▪ douglas fir - used in internal framing ▪ cypress, macrocarpa, larch – used for framing ▪ eucalypt – decking and flooring ▪ cedar and redwood – used for window joinery, weatherboards and finishing timbers ▪ totara and jarrah – used in the ground

More information

For further information, contact the council's eco-design advisor on 570 6666 – a source of free, independent advice on how to include sustainable features in your building or renovation project

Useful links:

- Hutt City Council (www.huttcity.govt.nz)
- Smarter Homes (www.smarterhomes.org.nz)
- Sustainable building authority Level (www.level.org.nz)
- Energy Efficiency and Conservation Authority (www.eeca.govt.nz)
- Building Research Association of New Zealand (www.branz.co.nz)
- Eco-Design Advisor (www.ecodesignadvisor.org.nz)
- Ministry of Business, Innovation and Employment (www.dbh.govt.nz)