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Home renovations offer a wonderful sense of renewal and change, and if you believe the statistics Australians take up the challenge on a regular basis. On average we move or renovate every seven years and over 50 percent of homeowners will look to renovate at some stage. However, amidst this sense of renewal and change associated with home renovations, are hidden costs to our health and to the environment.

High levels of chemicals are introduced from materials and products during construction and renovation. The resulting indoor chemical pollution is often invisible and so it becomes difficult for people to make the connection between this pollution in their environment and its effects on their health. But chemical pollution indoors *does* have health impacts, particularly on the wellbeing of children and babies, because of their higher sensitivity to chemical exposures.

Children and chemical exposures

Indoor chemical pollution is recognised as a significant health risk to children by the World Health Organisation. In June 2006, WHO released the most comprehensive study yet on how preventable hazards contribute to a wide range of diseases. The study estimated that more than 33 percent of diseases in children under the age of five are caused by exposure to environmental pollutants, which includes exposure from chemicals commonly found in and around the home.

Amongst the cocktail of chemicals introduced into the home during renovations are brominated flame retardants used in carpets, electronic goods, paints, and some upholstery; formaldehyde, a known carcinogen used in adhesives and insulation; volatile organic compounds found in paint and

glues; and PVC, a widely used plastic that releases hazardous chemicals, including lead and cadmium, to the environment.

Exposure to these chemicals in the home poses a far greater risk to children than adults due to one key difference: children are not little adults. What this means is that you cannot assume children will react to chemicals in the same way as adults and just lower the 'dose' or exposure to adequately protect their health. In fact, children are many times more sensitive to chemicals due to complex biological, physiological, and behavioural factors.

For instance, kilogram for kilogram, children are exposed to more toxic chemicals in food, air, and water than adults. They breathe twice as much air as adults and are therefore at far greater risk of indoor air pollutants. Newborns and children up to the age of three are at particular risk because they are undergoing such rapid growth in the fundamental systems of their bodies.

A growing mass of medical and scientific evidence suggests that childhood exposure to toxic chemicals is linked to rising rates of some childhood cancers, including brain cancer, testicular cancer, and lymphocytic leukaemia, as well as behavioural disorders.

Australia has one of the highest rates of childhood asthma in the world, with one in four children suffering from the disease. According to the Commonwealth Department of Health and Aging, up to 60 percent of asthma deaths may be associated with avoidable factors. Known triggers of asthma attacks include tobacco smoke, paint, aerosols such as hair spray, perfumed products, and volatile organic compounds that are introduced into the home during renovations through a wide range of products including paint, varnish, sealers, glues, and PVC-vinyl. The question of

For more information

Safer Solutions is the Total Environment Centre's web-based community education resource specially designed for parents and carers of young children to provide information and advice on ways to reduce the impact of chemical pollution in and around the home.

The Safer Solutions website (www.saferolutions.org.au) provides answers to your frequently asked questions from experts including Jo Immig (author of *Safer Solutions for Safer Renovations: The Essential Guide to Reducing Chemical Impacts from Home Renovations*) on ways to reduce your family's everyday exposure to chemicals in the home, garden, and during any home renovations.

whether exposure to these substances causes asthma remains unanswered.

Got the nesting instinct?

The 'nesting' instinct is a natural urge for expectant parents who may decide to renovate in time for the arrival of their new baby. Renovations, however, often involve painting and decorating with products that contain hazardous chemicals. As a result, parents may unwittingly expose the foetus during pregnancy and place newborns in a highly toxic environment. Chemical pollutants can also be transferred during breastfeeding.

Babies are at greatest risk from chemical exposure because their skin absorbs up to three times the amount of chemicals absorbed by adults. This is a critical time to consider the impacts of chemical pollution and to take the time to create a healthy space for your new arrival.

For a list of tips and safer renovation solutions see overleaf. ■

Jo Immig is a freelance writer and co-ordinator of the National Toxics Network, an NGO dedicated to ensuring a toxic free future for us all.

Healthy

Home Renovations

By Jo Immig

A new baby often heralds a house make-over but hidden chemicals in paints and flooring pose risks to you and your family. Fortunately there are safe alternatives.



5 tips for renovating your home

Tip

Concern

Safer solution

Choose water-based paints and varnishes containing no or low levels of volatile organic compounds

Oil-based paints and varnishes give off volatile organic compounds (VOCs) that out-gas over long periods of time. Pregnant women should avoid painting or being in freshly painted rooms.

Look for plant and mineral-based paints and varnishes with reduced or no VOCs. Always check for lead hazards in any existing paint before doing any sanding or stripping in preparation for painting; home testing kits for lead are available. Ensure rooms are painted well in advance so they have plenty of time to air out.

Choose natural floor coverings over synthetic carpets

Wall-to-wall carpets can harbour a variety of chemical pollutants including pesticides, heavy metals such as lead and other persistent chemicals that have been applied for stain resistance, fire retardants, and insect-proofing. Carpets can continue to emit a range of hazardous chemicals from their fibres and glues found in the underlay and carpet itself, including formaldehyde and solvents, for several years after their installation. Formaldehyde is of particular concern because it is a known human carcinogen. Infants and toddlers spend a lot of their time crawling around or playing on the floor where they can absorb and breathe in these chemicals.

Wooden floors, tiles, and rugs, and natural flooring materials such as sisal and coir are safer options. If you choose to have carpet installed, consider requesting that it be put down with tacks instead of glues and choose a natural untreated fibre carpet such as wool. Ensure the carpet is well-aired before and after installation.

Choose natural bedding

Some cots are painted with high-emitting VOC paints and some older cots may pose lead hazards. Mattresses can out-gas chemicals such as brominated flame-retardants and formaldehyde, which can increase the risk of neurological problems in children. Synthetic bedding fabrics can emit chemicals that are readily absorbed into the skin and some fabrics have been treated with formaldehyde.

Ensure any cot and mattress meets current Australian Safety Standards, even if it is a second-hand cot. Source mattresses that have not been treated with brominated flame-retardants or toxic stain-resisting chemicals. Any new mattress should be well-aired before a baby sleeps on it. Choose natural fibres such as organic cotton and wool for bedding.

Choose safe furnishings and toys

A lot of furniture is made from composite wood and laminated products, which contain glues and can out-gas high levels of formaldehyde and solvents. Curtain fabrics may be vinyl-backed or chemically treated for stain resistance. Babies put toys in their mouths and some plastic toys contain PVC (see *Kindred*, vol 24 – Practical Values: Hard to Break – how plastics affect our lives).

Choose solid wood or other natural materials with minimal glues and varnishes for furniture and natural easily washable materials for curtains or blinds. Avoid plastic toys for babies and ensure any plastic items are PVC-free, especially if they are intended for chewing and sucking. Unpainted wooden toys and natural materials are safer options.

Ensure there is plenty of fresh air, use natural cleaning products, and non-chemical pest management

Keeping your home clean, fresh, and free of pests is important. Many cleaning products, room deodorisers and pesticide products such as 'mozzie zappers' contain chemicals that are hazardous for babies who breathe in the residues and touch contaminated surfaces. Chemicals accumulate close to the ground, which is the 'breathing zone' for children.

Insect screens on windows and doors and cotton mosquito nets help keep out unwanted pests and allow the room to be ventilated with confidence. Open the curtains! The sun is one of the best sterilising and freshening agents there is. Avoid chemical room deodorisers altogether. Chemical-free cleaning options such as micro-fibre mitts and cleaning products free of fragrances and other harsh chemicals are also widely available.



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This article was published by **Kindred** magazine.

Kindred supports and gives voice to the important movement towards sustainable living and natural parenting happening all around the world.

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