

Guidelines on locality, housing materials and house design

1. LOCATION

Preferably in clean air but this is difficult with current pollution levels. Housing should be available in a suitable location.

Suggestions

Close to sea to take advantage of sea breezes and clean air.

On a hilltop or high position to take advantage of breezes and improve airflow indoors

As far away as possible from:

Neighbouring houses - this is essential if sensitivity levels are severe and fumes from; fragranced products e.g. laundry products, detergents, disinfectants, personal care products, perfumes, pesticides, wood smoke, paint, hobby products etc. are likely to cause a problem. Ideally, chemically sensitive individuals need to be housed in areas that are not built out. Where this is not possible, the surrounding properties should be of materials that do not require painting.

Weatherboard houses or houses built from other materials that require painting - these can create major health problems to chemically sensitive individuals when they require re-painting or renovations. Many chemically sensitive individuals become severely ill when exposed to paint fumes and as some paints take a long time to outgas e.g. oil based enamels, all surrounding dwellings need to brick or some other finish that does not require painting

Coastal wetlands - where coastal wetlands are present individuals will be subject to large volumes of chemicals or live bacterium (biological control agents) for mosquito treatments. These can be human allergens, respiratory irritants and neurotoxins. The health impact of the mixture of these with city pollution is unknown.

Canal developments - these are often sprayed for midges and mosquitoes.
Industrial estates particularly where zoned for noxious industry and engaged in waste destruction, asphalt plants, CCA treatment facilities, Oil recycling, Fertiliser plants - these can contain very toxic substances that are respiratory irritants, carcinogens, human allergens e.g. sulphur dioxide, toluene diisocyanate, furans, dioxins.
Hospital incinerators, Council incinerators, Dump sites, - these can seriously contaminate air quality with very toxic substances that include human allergens, respiratory irritants, neurotoxins, carcinogens.

Parks, Creeks, Playing fields, Golf courses - a lot of herbicide and insecticide can be applied. These can contain human allergens, respiratory irritants and neurotoxins.
Power stations, electric generators, Overhead power lines, Mobile phone towers. Some individuals are sensitive to electromagnetic radiation and need to take these into consideration when choosing a suitable location.

Petrol stations, Main roads, a heavily trafficked road, or freeway - exhaust fumes contain respiratory irritants, neurotoxins, can cause high blood pressure, cardiac disease, cancer, childhood leukemia and affect the birth weight of infants.

Shopping centres - heavy motor traffic around shopping centres can cause respiratory irritation, neurological problems, cancer.

Train lines - these are regularly treated with pesticide and herbicide. Pesticides and herbicides can cause many health problems including respiratory depression, neurological problems.

Farms - agricultural chemical usage has caused many health problems. Some problems are allergic reactions, respiratory disease, neurological disorders, cancers, endocrine disruption, developmental delay, low birth weight babies, still births, birth deformities. Some agricultural chemicals can bioaccumulate in the human body and affect genetic material (DNA) which in turn can affect future generations.

Timber plantations. A range of herbicides and pesticides are used to control weeds and insect attack.

Schools - these are frequently painted, treated with pesticides inside and around the grounds, which are also treated with herbicides. Visit: [Tools for Healthy Schools](#), this is an online chemical hazard management resource for schools from the National Toxics Network

<http://www.oztoxics.org/ntn/index.html>

and Chemical Awareness in Schools

<http://www.netspeed.com.au/rdi/cas/>

For information on Green Cleaning go to

[Healthy Schools Green Cleaning Guide](#)

To check your current or potential locality

Australia:

Visit the National Pollution Inventory website for information on pollution emissions are in your town or region or your intended town or region. The database searches by Postcode www.npi.gov.au

The Australian Department of Environment and Heritage, Environment Reporting Tool <http://www.deh.gov.au/erin/ert/index.html>

allows you to find information on threatened species, important wetlands, heritage sites, pollutant emissions (as per National Pollution Inventory) in your town or region.

US:The US EPA website page <http://www.epa.gov/epahome/wherelive.htm> has information on 'Choosing Where to Live' in the US and US Territories.

2. BUILDING MATERIALS

Suggestions

Ensure that any materials capable of contaminating indoor air and affect health are not used in the dwelling. Building products and paints that are low in Volatile Organic Compounds (VOCs) are essential to reduce contaminant levels inside the dwelling. Discussions with public housing authorities are essential at this point as each individual will have different sensitivities or sensitivity levels and may need to define which materials need to be avoided. It is essential to ask the person with a disability what they know about materials they tolerate and don't tolerate. In these discussions, it is important that the client is heeded as poor choice of materials can severely exacerbate existing health problems and inflict high medical costs on an individual who is poorly resourced to deal with any increased costs.

Building materials should be low maintenance materials as much as possible because products used for repairs or painting are likely to cause ill health.

BUILDING MATERIALS -

As much glass, metal, solid timber (tolerated timbers) and ceramic material as possible.

External walls - brick, cement brick. While timber is an acceptable material it may require painting which can greatly exacerbate disabling health conditions. *While*

painting outside is less of a problem than painting inside an individual with multiple chemical sensitivity (MCS) would have to move out for a period of time.

This raises the question of where would such an individual go? There is no crisis accommodation suitable for individuals with MCS.

Roofing - terracotta (clay) tiles, whirly birds in roof to increase air exchange. Some individuals with chemical sensitivities react to electromagnetic radiation. They may not feel well under a metal roof.

Flooring - ceramic tiles, solid timber. Carpet should always be avoided as should cement floors. Cement floors can be a source of cement dust that can be highly irritating, an added problem with cement is that it contains additives such as chrome and formaldehyde (both sensitisers). Timber flooring is a better option. For a client with arthritis or joint disorders, hard concrete floors will exacerbate their pain state.

Internal walls - tolerated materials only - no board products. Some individuals do not tolerate plasterboard.

Wet wall areas - ceramic tiles

Cupboards - solid timber (Kitchen and Bathroom). Avoid any form of chipboard as it is a major source of formaldehyde contamination. Melamine can also cause severe reactions in chemically sensitive individuals.

Bench tops - stainless steel or ceramic

Electric stove, cooling, heating and hot water service - no gas on premises. Some of these may be better run on solar energy if available.

Bath and basin - porcelain, enameled metal, stainless steel (no fiberglass or plastics)

Shower Base - stainless steel or ceramic tile

Laundry tub - stainless steel

Taps - stainless steel. Some may tolerate powder coatings.

The aim is to reduce VOCs and other indoor air contaminants that can provoke reactions in sensitive individuals

The following materials are not acceptable for people with allergy/chemical sensitivities

- Chipboard – a source of formaldehyde, VOCs. Should never be brought into dwelling.
- Carpet – dust, mould, VOCs`from synthetic materials in underfelt, adhesives and materials in the carpet.
- Plastics/Synthetic finishes`– VOCs
- Melamine - VOCs
- Laminated chipboard - VOCs
- Fiberglass products - VOCs
- Fluorescent lighting – not full spectrum, flickers, causes migraine and epileptic seizures
- Gas - VOCs
- Gyprock – too many additives, VOCs. Not well tolerated by some chemically sensitive individuals.
- Solvent based products – water based products should be used in place of these.
- Pest control - housing for individuals with allergy/chemical sensitivity/respiratory disease should not be treated with pesticides.
- Cleaning - if a dwelling has been previously occupied and needs to be cleaned, it is essential that the client must be consulted prior to any cleaning to ensure that only tolerated cleaning products are used. Should the dwelling have carpets care must be taken to ensure that no scented products or solvent based products are used.
- Maintenance - should a dwelling require maintenance prior to occupation by a chemically sensitive individual, the individual should be consulted as to tolerated materials.

Building Material Information

If there is any question about the suitability of materials, getting a material safety data sheet from the manufacturer should be the first basic step. This will give further information about a product and assist to assess product suitability. (<http://siri.org/msds/mf/cards/> or www.cdc.gov/niosh/)

Assistance from the treating doctor may also be required.

Further information about building materials and products is available on the Internet from a variety of sources such as www.epa.gov

Australian Sites:

[Ecospecifier](#) is a guide to selection of materials on environmentally preferred basis developed by the Centre for Design at RMIT University in conjunction with EcoRecycle Victoria.

[Green Building Centre](#) The Green Building provides easy access to genuine green building information, products and services.

The website page <http://www.futureaustralia.net/> gives an extensive list of Australian websites for eco-design and architects.

Many substances used in domestic dwellings are known to be injurious to human health. Some such substances e.g. formaldehyde are known to be higher in the domestic environment than in the workplace. While acceptable air levels of some such substances are set for the occupational environment, no levels are set for domestic dwellings. Further domestic dwellings are not routinely sampled for these toxins and the medical profession is not trained to diagnose injury arising as a result of exposures in the home. In the absence of any known treatment following a sensitisation, as with allergy, avoidance is the only known method of health care. Some

nutritional substances and medications are helpful to control symptoms but there is no known cure. Problems associated with indoor air quality have been known for a very long time.

ASEHA Leaflet information on [Indoor Air Pollution: Is your place a safe place?](#)

Use this link for more ASEHA information on [Air Quality](#)

Australian Site for information on home building and Air Toxics [Aust. Govt Publication Your Home](#) . Go to the Indoor Air Quality section of the Technical Manual.

Australian: Department of Environment and Heritage, <http://www.deh.gov.au/atmosphere/airtoxics/> has information on air pollutants, air quality, air toxics, indoor air quality, health effects and more. The website also provides links to useful sites within Australia and in other countries, particularly the United States of America

3. HOUSE DESIGN

A detached house with a minimum of 2 Bedrooms for a single individual is essential as items of furniture and clothing in the sleeping area will cause adverse health impacts. As an allergy sufferer/asthmatic or chemically sensitive individual will spend more time in their bedroom than an individual without these disabilities, they need a room devoid of materials that cause reactions. The bedroom should be a safe haven where they can retire for rest and recuperation. This is essential for maintaining health and being able to get on with day to day activities.

Detached – as far away from neighbours as possible to offset health problems exacerbated by cigarette smoke, wood heaters and pesticides, strong detergents/disinfectants, garden chemicals, fragranced products including scented candles, incense and essential oils being burned

Open plan - with good cross flow ventilation to maximise air exchange.

Entrance area that can be closed off from rest of house

Kitchen that can be closed off from the rest of the house. This is essential as the odours from appliances and cooking may make a chemically sensitive person ill.

Built up off ground to allow good cross flow ventilation under house (must be dry at all times for mould control) and not have concrete floors.

Concrete stumps and ant caps or Termimesh - no pesticides inside or under dwelling

A dry, secure outside storage area is essential for storage and offgasing. New furnishings/electrical appliances/products may need to be left outside of the house for a period of time to allow them to offgas before they can be brought inside and not impact adversely on health. Things like mowers also need to be securely stored away from the dwelling.

Windows and doors should seal adequately to allow for efficient air filtering or air conditioning. These work inefficiently if the windows and doors do not seal properly.

Power points- persons with allergy, respiratory disease and chemical sensitivities may need more power points to run respirators, air conditioners, air filters or other air cleaning devices.

Exhaust fans in kitchen and bathroom for mould and odour control are essential. Ventilation can also be assisted by a whirlybird in the roof.

Lighting -Incandescent only. Fluorescent lighting may cause migraines or epileptic seizures.

For information on healthy home design have a look at the following website <http://www.theworl.com/~habib/thegarden//mcs/resources.html>

UK website. Ecology House: <http://www.ecology.co.uk/>

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