HEALTHY HOMES & BUILDINGS

Concrete has innate properties that help create healthy living and working spaces. Concrete reduces the impact of noise, it doesn't emit VOCs and it complements biophilic design principles (connecting the built and natural environments).

Acoustic insulation

Acoustic insulation is the ability of a material to reduce the energy of sound waves passing through it.

Due to its mass, concrete provides excellent and cost-efficient acoustic insulation for walls and floors. In high density living for example, it provides effective acoustic separation between internal spaces and outside noise sources (e.g. traffic), creating a more private and peaceful living environment. In the workplace, these same qualities enhance employee productivity and wellbeing.

Concrete does not emit VOCs.

Volatile organic compounds (VOCs), are gases that are emitted into the atmosphere from products or processes[1], and they can cause illness and allergic reactions. VOCs emissions are one of the contributors to the so-called sick building syndrome, in which the health and well-being of building occupants is negatively impacted.

Some building materials use chemical-based treatments for rot, pest and fire resistance, and these treatments can potentially release VOCs into the atmosphere. Concrete, on the other hand, is inherently non-emitting.

Biophilic design

Biophilic design is the practice of using materials and forms to connect the built environment with the natural environment, with the aim of improving people's physical and mental health and wellbeing.

Concrete is well suited to biophilic design. It can be formed into an almost limitless range of sinuous forms and curves that relate to the surrounding natural environment, and can incorporate natural coloured pigments or various finishing techniques to replicate those found in nature, resulting in unique, almost organic textures and finishes.

A concrete roof or wall can also provide an excellent base for incorporating lawn and plants into a building's fabric. This is because as an inert material, concrete won't chemically react with soil, lawn or plants, and provides a clean line and smooth surface on which to 'design-in' nature.

Electromagnetic shielding

Electromagnetic interference entering our homes and workspaces can cause electrical equipment to perform poorly or malfunction. At the same time, many of us are increasingly concerned at the impact this electromagnetic radiation has on our health and living standards.

Typically, concrete is neither appreciably magnetic nor conductive, but recent research[2] has indicated that its shielding properties can be improved by using high-strength, high-ductility concrete (HSDC).

While more research needs to be done, this is an exciting development, as enhancing concrete's electromagnetic shielding properties could help reduce electromagnetic pollution and its potential impacts.

[1] https://www.dcceew.gov.au/environment/protection/npi/substances/fact-sheets/total-volatile-organic-compounds

[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8703469/