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Inside

Interior surfaces are changing, as products emerge that use recycled and renewable materials which allow for end of life reuse and reduce the environmental impacts of extraction, manufacture and transport. In the future our surfaces won't just provide practical and aesthetic finishes; they will improve a building's efficiency by regulating indoor temperatures and humidity and absorbing mould and chemical pollutants. The more we are willing to re-think our traditional surfaces of stone, tile, plasterboard and paint and experiment with new products, the faster we can encourage the development and widespread use of innovative materials locally.

Drywall

Since the 1960s plasterboard has been the most common interior walling in offices and homes, being inexpensive, lightweight, and easy to work with. The extraction of raw gypsum and production, transport and disposal of plasterboard is energy intensive and creates toxic waste. Plasterboard is wasted on-site at a rate of up to 30% due to breakage and cutting, and accounts for up to 9% of all landfill waste in New Zealand. CSR Gyprock has in place a take-back scheme for plasterboard offcuts, and Gypsum can be recycled as an agricultural fertiliser by companies such as Ecogypsum in Victoria. USG Powerscape Fibrerock Aquatough plasterboard contains 95% recycled content.

Renewable panel systems

Structural panel systems that provide a paintable surface inside and are made of renewable materials such as Durra Panel (wheat or rice straw fibre, paper liner and PVA glue) can be specified at a design level, using full boards and reducing labour and waste. Composite/compressed sheet claddings such Kobi board (Portland cement and eucalyptus fibre) can be used for a concrete-like appearance.

Timber/bamboo linings and plywoods

Pre-finished lining boards in renewable bamboo or plantation timber offer diverse patterns and durable surfaces. Paulownia is a very fast-growing lightweight Asian hardwood, grown in Australian plantations and available in pre-finished lining board in many styles. Low VOC interior grade plywoods laminated with hoop pine, bamboo, FSC or local timbers are a durable option. Letobamboo boards are Greentag certified low-VOC bamboo panels for cladding, doors and joinery.

Stone

Benchtops are the hardest working surfaces in our homes, exposed to heat, moisture and sharp objects. Stone is a finite, high-value resource of monolithic durability. High wastage occurs cutting the stone to size and when it's disposed of due to changes in fashion. The extraction and transport of natural stone such as granite and marble is environmentally damaging. Looking for salvaged slabs, secondhand benchtops or choosing a stone indigenous to your region is a good way to approach the use of stone.

Composites

Many composite stone products use post-industrial or consumer waste content, and are suitable for horizontal and vertical surfaces. Interesting products are being made from recycled content and renewable materials such as Paperock (Phenolic resin and 100% recycled paper) and Eco by Cosentino (75% recycled materials including mirror, glass, ash and earthenware).

Natural rubber

Sheet format surfaces in wet areas reduce the need for cleaning due to fewer joins and less grout. Rubber-based linoleum products such as Marmoleum by Forbo provide a smooth surface for general floors or bathroom or laundry walls. They are not suitable for wet-area shower walls or floors (marking if water or damp items are left on the surface). Marmoleum is made from 72% renewable resources, has 43% recycled content and is 100% biodegradable.

Phase-change materials

Phase-change materials (PCMs) are small, lightweight materials that absorb and release heat and can be used to regulate indoor temperatures. PCMs have been incorporated into lining systems including Knauf's smart board (not yet available in Australia), a lightweight interior cladding surface only 5 mm thick, which can provide the equivalent thermal mass of 150 mm of solid concrete. PCMs have the potential to provide a paradigm leap in the efficiency of our homes, allowing for solar passive function with lightweight construction.

Biological surfaces

Living surfaces such as biological concrete and Mycelium products are currently being developed. Myco-board is created with the vegetative fungus growing in branch-like structures. Mycelium technology has been developed by Ecovative design in New York, USA, and structural board products that could replace particle and composite boards without using toxic binders are likely to be part of our future building technology. Along with vertical growing frameworks, living technologies have the potential to not only cool, humidify and provide clean air but to also absorb CO2.

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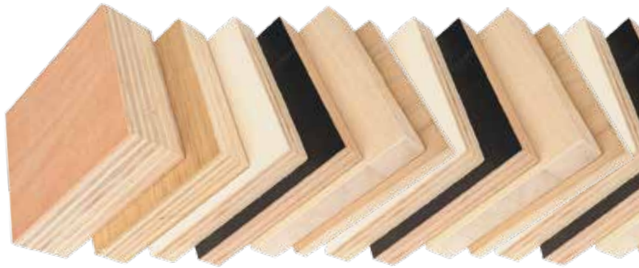

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