

## Fixtures

### Flooring

#### Carpet

**The bottom line is ...** The carpet in the new office was only three years old at the time of Zero Waste SA's relocation. Although its sustainability performance is at the lower end of the spectrum, it was retained as its removal would have generated a large amount of waste.

**... but next time:** Zero Waste SA could consider a supplier such as Interface, the world's largest carpet manufacturer with strong sustainability credentials, who now offer environmentally sound carpet tiles for rent. Known as a 'cradle to cradle' product, these tiles are designed to be perpetually remanufactured and never enter landfill. They are made of PVC backing and 100% nylon overlay, and are easily removable to facilitate their return to the company for recycling and remanufacture.

#### Kitchen flooring - Another spin on used tyres

'Neoflex', a recycled rubber sheet material manufactured from used automobile tyres, has been used for the kitchen floor. It is manufactured in Australia by RepHouse. The carpet removed to make way for this flooring has been returned to the building owner for storage and reuse at the end of Zero Waste SA's tenancy.



### Wall partitions

As plaster boards and timber wall studs make up significant volumes of waste in the construction industry, the use of these materials has been avoided where possible. For instance, in one Department of Administrative and Information Services office refurbishment, more than 70% of waste by mass was made up of ceiling tiles, plaster boards and timber studs.

#### MDF partitions

The partition system chosen uses Alpine E-Zero MDF fixed to steel studs with screws. This system was designed to facilitate disassembly and reuse and recycling of materials, but it also needed to fit with the pre-existing exposed beam ceiling profile. (Where they can be used, modular systems further increase the likelihood of disassembly and reuse.)

To ensure that the partitions can be taken apart in future, the architect specified that screws (rather than nails) would be used, nominating the height at which they would be placed and that they were to be left exposed, rather than puttied over. To conceal the screws, the constructors then clipped on rails and skirting boards, which can be removed prior to future disassembly.

In another step taken to minimise wastage of MDF, all dimensions were specified in multiples of 300 mm (MDF is only available in sizes that are multiples of 300 mm). The system has also been designed to minimise plastering wherever possible.

## Glass partitions



Laminated glass was used for partitions on the northern side of the office's enclosed rooms; the glass was specified in sections 1200 mm wide to facilitate its reuse in future and minimise wastage. In terms of sustainability, glass is:

- recyclable
- has low embodied energy
- allows the passage of light (natural and artificial).

## Showcasing non-conventional materials

The fitout was seen as an opportunity to showcase non-conventional uses of material, such as timber, as well as non-conventional materials, such as straw bales and recycled plastic. It is hoped that such demonstrations will help expand the repertoire of options considered in other building/fitout projects.

Another non-conventional material (incorporating recycled wallpaper) was used for partition coating.

### Timber screen at entry to office

Wood has been used for the open screen (or grille) located between Zero Waste SA's office and the common corridor area, which allows 'return air' to flow back from the office to the building's HVAC plant. Wood was used in place of aluminium (the standard choice) because of its much lower embodied energy and associated pollution, and because it is more likely to be reused as it's easier to work with. Its reuse has been facilitated by using screws, rather than nails.



The straw bale wall can be seen on the right, with a small opening in the rendering allowing the straw to be seen. To the left is the boardroom, with horizontal plastic slats lining the partition wall.



The timber screen leading into the office is on the right, and more horizontal plastic slats can be seen at the back of the reception area.

## Straw bale feature wall

Rough cement render was used over straw bales for a feature wall located in the reception area. In terms of sustainability, straw bale walls:

- have low embodied energy in terms of fabrication and transportation
- provide good thermal and acoustic insulation
- are light and can be constructed quickly and easily
- require less trades people in their construction (which can facilitate savings in time, cost and energy).

The straw bale wall was used as part of a concept to use the office reception area as a showcase of material being used in the building industry.

## Recycled plastic slats

Slats made of recycled plastic, one of the products manufactured from plastics collected in municipal kerbside recycling schemes as well as commercial and industrial sources, are featured in the reception area, boardroom and kitchen. While this material can be used for a variety of purposes, in this office they will be used to present and display a range of items (pictures, magazines etc), which are hung or clipped on. In the boardroom, the slats also serve an acoustic function, helping to provide a sound screen between it and the adjacent utility area.

These plastic slats:

- are made from recycled plastic and help to stimulate market demand for this product
- do not need to be painted
- are robust and involve low maintenance
- are easy to install and fabricate on site.

## Windows and glazing

Standard internal glazing was used, as no green alternatives were identified.

## Ceiling material

Existing ceiling tiles have been retained, to avoid wastage associated with replacement. Broken ceiling tiles will be repaired where possible; extending their lifespan represents better use of embodied energy and reduces waste.

**A sustainable option:** where tiles do need to be replaced, and for future fitouts, the 'Ultima' acoustic ceiling tile, manufactured by Armstrong, has a number of green attributes: it has high recycled content, strong durability and high light reflectivity.

## Eco-core timber 'bulkheads'

Eco-core was used on both the reception area joinery as well as the bulkheads to demonstrate materials that can be used besides the typical plasterboard and laminates that are being used in common practice. Eco-core has the advantage as a material due to its nature of being constructed from recycled timber by-products as well as being a strong structural material that requires less preparation as a finished end product in comparison to plasterboard and laminates.

## Doors



The doors are constructed from plantation western red cedar wood finished in tung oil, with either clear or frosted glass panel inserts.

Most doors have been fitted with glass inserts to increase the availability of daylight and preserve aesthetic appeal. From an energy point of view, wood is preferable, as glass has significantly higher embodied energy; that may be offset a little, however, by glass reducing the need for artificial lighting (and associated energy) and increasing productivity.

For cost reasons, all door frames are made of aluminium. The aluminium is, however, mill finished (or uncoated), a saving given that further energy and resources are usually consumed to apply coatings to this already highly resilient material. While more expensive, wood is a more sustainable option.

## Kitchen fixtures

Kitchen facilities have been located to ensure that water services are as close as possible to existing infrastructure servicing the office toilet facilities, in order to minimise additional infrastructure requirements, associated building works and materials wastage. Less pipework will also reduce the loss of heat from hot water pipes.

### Kitchen unit

The kitchen unit is a mobile unit and is not fixed to the wall as a typical kitchen bench would be, hence, the unit can be taken to our next office should we need to relocate. This avoids creating waste through demolition. The materials that the unit is made from, in particular, the stainless steel top, takes into consideration the longevity of the bench as opposed to using a cheaper laminate.

## Toilet facilities

The pre-existing toilet facilities have been retained. Their replacement would have required significant works, generated waste with high embodied energy, and caused inconvenience for other office tenants.