



Reduced Materials

This category explores how thinking about material simplicity and resource efficiency from the inception of the design process helps facilitate ease of maintenance, future proofing, and end-of-life recovery.

Within the context of this category, *reducing* refers to minimizing excess through the streamlined use of materials and form, making products more resource-efficient. It explores projects that reduce complexity and complication by utilizing fewer constituent parts or materials, or through improved manufacturing processes—thereby reducing the overall carbon footprint and energy use involved in production. Designing for disassembly means reducing the need for dismantling or separating complex components, which can be time-consuming and costly. By minimizing the variety of materials used and simplifying connection points to nonpermanent fixings and fastenings, designers lower logistical and economic barriers to recycling and

reuse; this includes phasing out chemical and irreversible fixings like glues and binders, helping ensure that materials can successfully reenter the manufacturing cycle.

Mono-material thinking

Paradoxically, a well-executed, highly distilled, simple concept often involves innovation and technical complexity—particularly where one material is fulfilling the function of many. For example, the Mono [PA6] backpack by FREITAG (p. 50) is made entirely from nylon, despite each of the bag's 17 components having highly specific performance requirements and properties, from the buckles, carrying straps, and sewing thread to the water-repellent outer fabric.

This mono-material approach is also highlighted by projects like the Cork House by Matthew Barnett Howland, Dido Milne, and Oliver Wilton, which replaces what are typically multiple layers of a building's envelope with one material, cork (p. 98). To eliminate glue and mortar and achieve the high tolerances necessary for interlocking friction fits, every cork block has been precision-milled by a 5-axis CNC machine. While mono-material designs simplify end-of-life recovery, achieving this simplicity often requires highly technical procedures to ensure that the material meets diverse performance needs—in this case, sufficient airtightness and water resistance.



Opposite and above: The interior of the Cork House by Matthew Barnett Howland, Dido Milne, and Oliver Wilton. The house's monolithic walls and corbelled roofs are made almost entirely from solid, load-bearing cork.