

Composite Prime decking



Long-lasting, moisture-resistant and cheap, plastic is generally an excellent material when in use, but it's a harder substance to love when faced with disposing of it. **ROGER HUNT** looks at how the construction industry is tackling its plastic waste problem

PLASTIC fantastic?



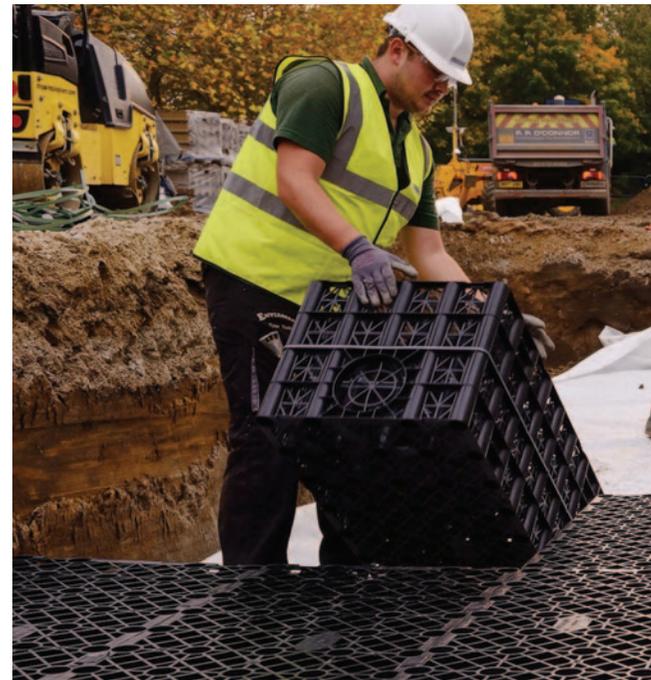
Shocked at the images of marine life ensnared by ocean pollution shown in the BBC's Blue Planet II series, people have woken up to the problems caused by plastic waste. Few sectors are immune to the Blue Planet effect but, as the second largest user of plastics behind retail and the generator of 20% of all plastic waste, the construction industry has to take notice.

According to the Alliance for Sustainable Building Products (ASBP) single-use packaging is estimated to be a third of mixed waste leaving site. Much of this is then landfilled or sometimes fly tipped, some is burnt and only 2-4% is recycled. It is estimated only 14% of all plastics are collected to be recycled, with just 2% recycled in a closed loop, 8% downcycled and 4% lost. Of the rest, 14% is incinerated, 40% goes to landfill and 32% leaks into the environment.

Aside from packaging, the wide range of properties offered by plastics mean they are also used in construction products, from flooring, insulation, paints and finishes to windows, doors and pipes – piping and conduit are the largest users of polymers in construction and consume 35% of production. In use, plastic's slow rate of degradation is generally a desirable quality but this is a problem at end of life and the full implications of using plastic are only just beginning to be understood. The issues span the material's whole lifecycle from extraction and manufacturing, to the health implications of using plastic products in homes due to offgassing and the inhalation of toxic smoke from them in the event of a fire.

The ASBP is so concerned about plastics that it is holding a Plastics in Construction conference this month, which will bring together expert thinkers and doers to focus on the challenges, exploring the impacts of plastic products on the health of people and the planet.

Simon Corbey, associate director of ASBP, emphasises that the organisation is not advocating a plastic-free built environment. "We are a material agnostic organisation championing optimum outcomes for sustainability. However, we do advocate



an approach that, wherever possible, the use of plastic products in construction should be confined to specialist high-value, low-volume application areas."

"Plastic is so common and in so many products we build with, it is difficult to know where to start or identify the low-hanging fruit," says Corbey. "This plastic is there for a reason and the product might not be fit for purpose without it. We know there is a real danger of unintended consequences from switching away. We need to be sure any switch does actually reduce the environmental impact but not performance, while preferably being at no cost."

The benefits of plastics are undeniable: they are lightweight, cost effective, durable, provide a barrier to moisture, offer protection and are relatively maintenance free. One of Europe's largest manufacturers of plastic piping systems for the construction sector is Polypipe. It uses both

ABOVE Envirobuild cladding
ABOVE RIGHT Abode Switch water filter system
MIDDLE Polypipe water management system

BELOW Abode Swich water filter system

RIGHT Nik Spencer, founder and inventor of the HERU

FAR RIGHT Plastic packaging materials are relied upon by the construction industry to keep supplies protected and dry during transport and storage

BOTTOM Polypipe products are made using recycled plastics



which is designed to encourage people to ditch unnecessary plastics. “We hope the campaign will have a huge impact on our amount of plastic waste, and that it will help encourage our people to spot other opportunities where we can reduce waste, improve sustainability outcomes and ultimately deliver a big benefit to the bottom line of the business,” says McAllister.

Matt Taylor, projects surveyor at RWS, a provider of building refurbishment and dilapidation services, points to the fact that, in 2004, the government’s Sustainable Building Task group made recommendations of setting a minimum standard for the overall percentage of reused and recycled material to 10% of the material value of a project. “This has then been included in the Code for Sustainable Homes and developing more into the Building Regulations but, to date, these have been very thin on the ground and not promoted onsite, unless it’s under an audit from a governing body. It also comes down to what policies the contractor has, but there is no law that a contractor or builder must recycle or use a recycled product.”

Some products used in construction can be sourced as 100% recycled content. “We have specified park benches and seating made from recycled bottle tops,” explains Taylor. “But, in general, fully recycled products include damp-proof membranes, drainage, cladding and soffits, street furniture and some roofing materials.”

Among the companies offering these products is Composite Prime. The firm’s decking combines recycled plastics – over 280 plastic milk bottles are used per square metre – and FSC-certified end-of-life hardwood to form products with a natural wood appearance that offer a solution to many problems associated with traditional timber such as rot, colour changing, warping and slippery surfaces.

Envirobuild is another company working in this area. It is developing an ever-growing range of products including composite decking, cladding and fencing, as well as recycled plastic street



prime and recycled raw materials and, with more than 20,000 product lines available, it “enables the effective installation and performance of sustainable building technology, meeting the twin global challenges of carbon reduction and water management”.

Plastic packaging materials are relied upon by the construction industry to keep supplies protected and dry during transport and storage. Isabel McAllister, head of responsible business at international consultancy and construction company Mace, believes that this is unlikely to change in the short term. “What needs to develop is a new mindset across our workforces, proactive and empowered to identify unsustainable uses of plastics or opportunities to significantly reduce waste.”

Mace has launched a single-use plastic reduction campaign across the business, called Time to Act,

furniture and 'plastic lumber'. It's Hyperion wood-polymer composite cladding is made from 60% recycled FSC-certified wood and 40% recycled high density polyethylene.

One of the problems with plastics used in construction is extracting them at the end of their life. "Given the longevity of plastics and their low economic value if recycled, when compared to copper, aluminium and steel, constructors are often reluctant to recover them before demolition," says Aidan Bell, co-founder of Envirobuild. "Plastics constitute only 0.01% of a building, meaning they are too often ignored and, rather than being recycled, they are 'downcycled' – formerly high-quality materials reused as lower-value products."

Bell does not see a simple solution. "Buy-back schemes can have success, as shown by the economically viable example of PVC windows and doors, but until legislation enforces these schemes – as they did for gypsum by hugely increasing landfill costs – the responsibility falls on those within the industry itself. Contractors, site managers and architects must lead a sector-wide effort to better recycle plastics in housebuilding. If not, ethical companies will be left out to dry with an economic disadvantage that is hard to stomach in an industry renowned for tight margins."

At the ASBP, Simon Corbey, wonders whether purchases should be made on the basis of recycled content: "Should we be viewing the built environment as a sink for waste plastic?" He cites research by the University of Bath that revealed that it is possible to replace 10% of the sand in a concrete mix with waste plastic that has been ground down to similar sized granules as sand. Sand currently accounts for around 30% of a concrete's mix.

It is not just the plastic used in construction that housebuilders need to consider, there is also the plastic generated by those who occupy the homes they build. Backed by boiler manufacturer Baxi, the Heru is a new hybrid boiler that aims to help solve this problem, and is currently

undergoing technical trials at UK sites ahead of a move to the mass market.

The Heru takes disposable items, such as coffee cups, plastics and nappies, and converts them into energy to heat water using highly efficient, low temperature pyrolysis. When there is nothing in the home to process, the Heru reverts to conventional oil or gas fuel sources.

Discarded plastic bottles contribute a large proportion of waste, driven mainly by our thirst for bottled water. One change that housebuilders can make to help combat this problem is to install filtered water taps into the kitchens of new build properties, says Leanne Adamson, marketing manager for Abode, which offers a range of kitchen taps and accessories. "A tap with built-in filter delivers a constant supply of refreshing water that is pleasant to drink, encouraging consumers to ditch the plastic, while helping save on their shopping bill too." 

CONFERENCE

ASBP Plastics in Construction conference is on 28 February. Show House readers may attend at the discounted rate of £150+vat (normally £200). Visit www.asbp.org.uk/healthybuildings2019 quoting 'SHOWHOUSE'.

CONTACTS

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Read Roger Hunt's blog www.huntwriter.com and follow him on Twitter @huntwriter

BELOW Envirobuild decking and fencing
BOTTOM Envirobuild cladding
BOTTOM RIGHT Plastic window frames collected for recycling



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