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REFURBISHMENT | DRAINAGE STACKS



WHEN DRAINAGE REPLACEMENT STACKS UP

Overcoming the challenge of drainage stack replacement means coming up with new solutions, which can include prefabrication, says Polypipe's Graham Hicks

Drainage stack replacement in repair, maintenance and improvement projects can present complex challenges, particularly in public sector housing where a whole host of factors must be considered if the project is to be completed efficiently.

Drainage stack replacement is a major piece of remedial work, which – for public sector housing projects – inevitably means some period of time during installation when residents are without the use of their sinks, toilets and other facilities. In multiple occupancy buildings, where there are perhaps 100 or more individual homes, this can mean a significant level of disruption.

Replacing old drainage with prefabricated block in East London is a good example of this. The existing metal drainage system has reached the end of its useful life. On inspection, some of the horizontal pipework connecting the individual stacks to the main stacks on the additional waste connections. A separate set of drawings was created for the installer detailing all the parts of the stack and part numbers for that specific area. Because of the complexity of the project, several test stacks were created to

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How are construction OEMs adapting to the circular economy?

By Lucy Barnard | 17 February 2023 | 13 min read

Construction OEMs are hoping to meet new sustainability objectives with ambitious plans to increase the amount of remanufactured components they produce and the number of certified rebuilds by dealers. But is this enough to transition to a circular economy? Lucy Barnard investigates.

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New Civil Engineer

Clients sometimes need to be brave and choose a new approach to deliver the outcome they want

By Max Ross | By RAVEL MATTHEW



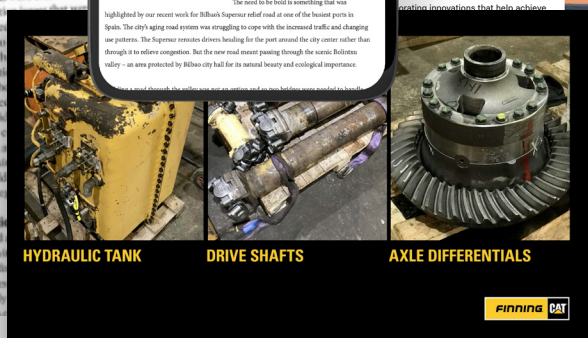
The growth and changing use patterns of our cities often creates novel civil engineering challenges. Projects undertaken to reduce urban congestion can expand into surprisingly challenging territory, placing restrictions on execution methods and forcing civil engineers to innovate to protect the landscape around them.

Working in or around existing infrastructure can be a given for urban projects, while the need to find novel and more expensive transport routes such as relief roads can mean different and even unique methodologies must come into play to large projects on roads. In short, if civil engineering is to support the evolving nature of our cities, we need to consider a wider range of solutions.

Ravel Matthew is site manager with Shing Special Structures

This often requires a degree of bravery from those involved from project design right through to delivery.

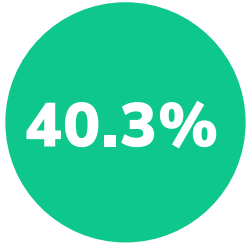
The need to be bold is something that was highlighted by our recent work for Bilbao Superior where we used a novel approach to bridge the city's aging road system was engaging to cope with the increased traffic and changing use patterns. The Superior demands drivers heading for the port around the city center either than through it to relieve congestion. But the new road meant passing through the scarce, Bilbao's valley – an area protected by Bilbao city hall for its natural beauty and ecological importance.



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EMBEDDED ENERGY | ALUMINIUM

Reshaping aluminium for a low carbon future

LABM

The use of recycled materials is critical to minimise embodied energy in aluminium systems. However, industry demand is outstripping supply, which means the need to find other ways to reduce aluminium's impact on the environment. John McComb, Reynaers Aluminium UK, reports on the latest low carbon innovations

Aluminium, with its lightweight structure and resistance to corrosion, offers some important performance benefits, which have led to its being specified on some of the world's highest-profile buildings.

It also has excellent recycling properties, retaining performance characteristics, but as with all construction products, we are not able to produce a perfect product with no environmental impact. As is the case with many different materials, the energy-intensive production process of aluminium is an area that the industry has sought to improve.

Optimising the use of recycled aluminium is of course, a critical means to reducing embodied carbon. Using only a fraction of the energy needed to produce the primary product, recycled aluminium has a lower level of embodied carbon, averaging around 0.5 tonnes CO₂e per tonne.

As aluminium can be infinitely recycled without incurring any loss in quality, this is a sound proposition, and 90-98% of aluminium used in the building industry in Europe is recycled in some way. However, availability is an issue as recycled material becomes a victim of its own popularity, with demand outstripping supply.

This means that, to meet the volumes construction projects need, primary aluminium remains a key source. Let's take a closer look at what is being done to ensure an increasing supply of lower carbon aluminium.

Evolving production methods

In Europe, primary aluminium is typically produced with a carbon footprint of around 9,342kg CO₂e per kg of aluminium, including extraction – although, across the world, this can be higher, depending on how the power used for production is generated. As this is the principal source of carbon, changes to how manufacturers power their processes – such as switching to renewable energy – can have a dramatic impact on carbon footprint.

In some countries, aluminium production is already moving to renewables, which is helping to cut embodied carbon. For example, hydro-powered plants are producing aluminium with embodied carbon levels of 442kg CO₂e per kg of aluminium.

Innovation is playing an important part in identifying ways to cut emissions even further. Where changes to the Hall-Héroult process – the main method of aluminium production – have been put in place, this has increased efficiency, further helping to cut emissions. Broadening the use of these changes will create an even bigger impact.

Other developments such as switching to a ceramic crucible instead of carbon being in combination have a significant carbon levels impact. While change support, low carbon remains limited. Aluminium, Reshaping our aluminium and in 2022, they improve the extruder our aluminium, among other developments.

In 2022, we had primary aluminium recycled aluminium path to improve achieve science Reynaers Act. As awareness levels are an increasing chain building design investment are lasting change create more in Reynaers has implemented Reynaers Act company to do investment in company's direct and indirect carbon 2022, as well as aluminium. This action, the carbon environment is

JOHN MCCOMB
Reynaers UK

REFERENCES:
1 Reynaers Aluminium website
2 Finning CAT

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Low carbon aluminium units

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Low carbon aluminium units

Polypipe Building Services has provided a complete drainage solution for the refurbishment of an aging tower block with minimal disruption by manufacturing bespoke drainage stacks offsite.

Collaborating with contractors Mullaly and consultants John Rowan & Partners, the Kent-based drainage system company provided prefabricated products adapted to meet the challenge of this 50-year-old building which had been subject to severe adaptation over the years.

Onsite production means quicker, less disruptive renovation of East London tower block

Date: 11 October 2022

Featured video
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AquaCell is a prefabricated drainage system that can be installed on-site.

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