

MONKEYTOE EBOOK 6

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**NINE BETTER  
EFFICIENCIES  
WITH  
MONKEYTOE  
& XBEAM**

**Monkeytoe**

EVERYTHING BETTER



## A NOTE FROM THE DIRECTOR

Now more than ever, businesses are looking to make their buildings and building processes more efficient. Every day, we look at ways of saving ourselves and our clients on their projects. Less waste, fewer losses, more time up our sleeves. The question is always: How can we do this better?

Efficiency has always been at the core of engineering, design and architecture. It's about looking for ways to get better results without compromising on quality, or to improve quality without compromising on time, money, space or any other valuable resource.

Take as an example our latest product, the XBeam. Thanks to years of research and some innovative engineering, the XBeam delivers superior strength without additional weight; in fact, it's almost twice as strong as steel, yet it's up to 65% lighter and can span more than 10 metres – all while supporting greater loads than traditional steel beams can.

The Monkeytoe XBeam is faster to install, stronger and lighter than standard structural steel alternatives. That's helping builders, designers and architects to see greater potential with their spaces, and get projects completed in fewer man-hours. That's what we mean by efficiency.

Efficiency is also about standing the test of time. One of the reasons we love marine-grade, high tensile aluminium is that its corrosion rate is a fraction of that of steel – that means that rather than having to worry about galvanising, painting and re-finishing every decade or so (as you would with steel), our aluminium lasts and lasts. Do it once, and do it properly.

Read on to discover how Monkeytoe and the XBeam are working with the industry to raise the bar for efficiency.



**Tim Prestidge**  
DIRECTOR OF MONKEYTOE



# NINE BETTER EFFICIENCIES WITH MONKEYTOE & XBEAM

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Monkeytoe

## INTRODUCTION

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We all want more efficiency in our projects. Less waste – of time, money, space, materials, or any other resource. Efficiency means making most of the opportunities at hand to maximise the potential for your project.

Combine incredible advances in technology with a bit of lateral thinking, and we're now seeing innovations in design, engineering and architecture that are making the most of the resources at hand, as well as pushing us towards exciting new solutions.

Take, for example, carbon fibre-reinforced polymers (CFRPs, or simply 'carbon fibre'). The earliest ancestor of fibre-reinforced polymers was in part invented by accident, but its potential as a light-weight, durable material was soon realised. It can now be found in every industry from aerospace to luxury personal items, sports equipment and, most recently, design and construction with our XBeam. Where there's a demand for a truly exceptional strength-to-weight ratio – and a maximisation of the space, weight and strength at hand – carbon fibre can be found.

Carbon fibre is one example across a huge range of industries, but one that's really raising the bar for what's possible with clever applications of technology. It's about improving the use of resources and considering solutions that others haven't. Our XBeam – with the power of carbon fibre – has helped builders and architects see huge gains in their projects, delivering faster, safer outcomes with better returns.

In the design, engineering and architectural spaces, we're always being pushed to make the most of what's available and to create – and find – innovative solutions. Let's see how Monkeytoe and XBeam can help.



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## TIME

#1

Time's one of those resources that you can't get more of - so making the most of what we do have is critical.

With a rooftop plant platform, there are three key issues: flexibility in design, the weight of the platform - which, if it's made of steel, can be two or three times the weight of the equipment it's supporting - and the hundreds of man-hours performed at height.

## DESIGN FLEXIBILITY

#2

From the ground up, we've designed the XBeam to be quick to manufacture for both standard and custom designs, which means we can turn around solutions incredibly quickly. This is especially useful when designers and builders are bringing us in late to a project: we can generate a solution in no time, so the fit-out can continue to run on schedule.

## WEIGHT AND MODULAR INSTALL

#3

There's a huge amount of design flexibility in the XBeam, meaning that in any situation where weight is a consideration, we can change the amount of carbon in a beam and balance the strength-to-weight ratio accordingly.

The XBeam platform's low weight and high strength, combined with the ability to be assembled on the ground on site, means that

the complete unit can be lifted into place - often by a single crane.

Add to this the ability of the XBeam to accommodate unforeseen site variations. We've designed the XBeam with high configurability - so no welding or cutting is ever required, just simple bolt reconfigurations - which makes for flexible solutions across the board.



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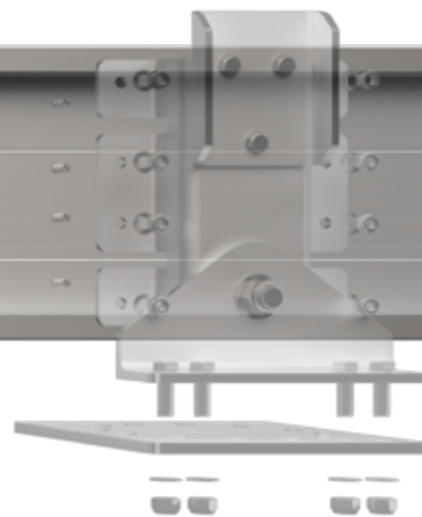
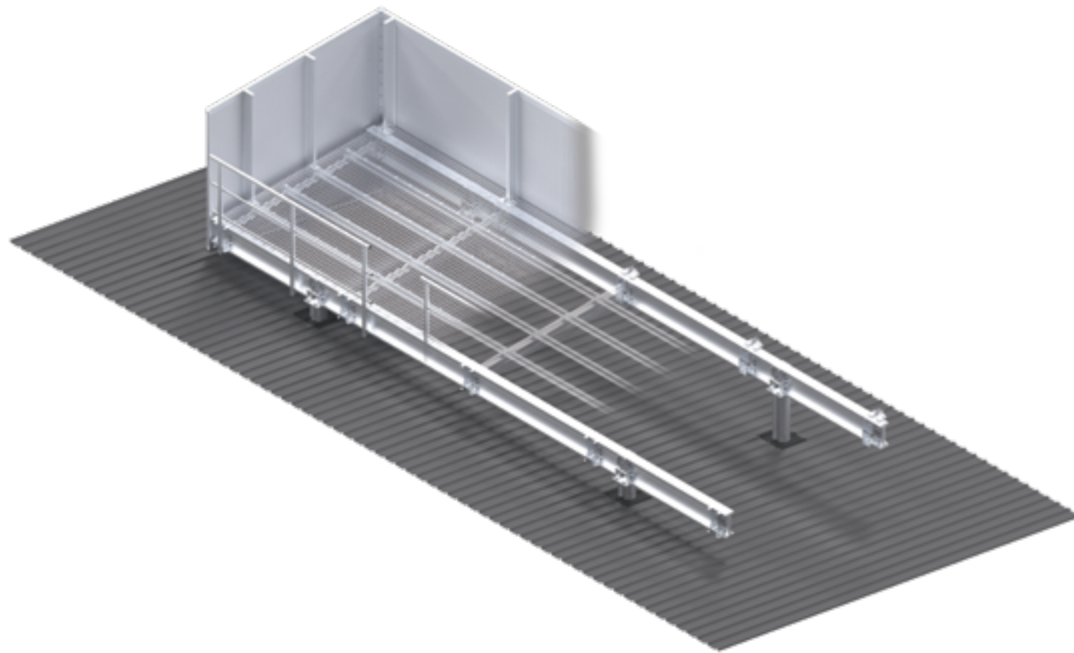
## REDUCING WORKS AT HEIGHT

#4

Height work is inherently risky, and there are many approaches to managing that risk. XBeam simply eliminates 90% of it by enabling most of the work to be done at ground level in a safe, manageable environment.

From the ground up, we've designed our XBeam platforms to be reconfigurable up to the last minute and, most importantly, able to be assembled on the ground from a kit set. The combination of low weight and ground-level assembly means that we've effectively eliminated hot works at height and the huge costs, risks and time associated with lugging heavy steel beams or welding.

Since a Monkeytoe XBeam platform can show up and be lifted onto a roof, you don't have contractors coming in, getting the heavy materials onto the roof, cutting them to size, doing hot works, and risking damaging a building that's nearly complete. With fewer people and consents to deal with, and products showing up effectively finished, the XBeam platform saves a lot of time, stress and money. Height work is inherently risky and there are many approaches to managing that risk. Xbeam simply eliminates 90% of it by enabling most of the work to be done at ground level in a safe, manageable environment.



## MONEY & THE LIFETIME COST

#5

Anywhere that you can tidy up on wasted hours is money in the bank. As we've seen, the fast turnaround and install of a Monkeytoe XBeam platform continues to surprise even the most experienced site managers, and often is where our clients first see the potential savings realised.

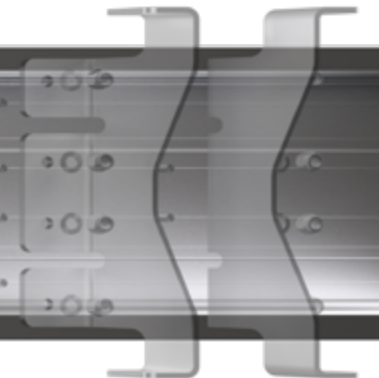
Faster builds obviously mean less money paid out for standing around, but they also mean your spaces get filled and utilised sooner by your clients. A week gained in time is a week sooner that a space can be fitted out and returning on its investment – something we can all agree is worthwhile.

There is also huge potential for the lifetime cost of a project. In a previous ebook, 'Aluminium vs. Steel', we talked about why aluminium is the metal of kings. It's along-lasting, durable and sustainable product – leagues ahead of steel when it comes to its potential in the design and construction industries.

Not only is aluminium around a third of the weight of steel, it's an order of magnitude better at resisting corrosion – something critical when we're thinking about the harsh environments and salt air of coastal climates.

Steel gets porous and needs to be treated and regularly re-coated to maintain its integrity; aluminium doesn't. Monkeytoe's marine-grade, high tensile aluminium-based options now solve the problem of ongoing maintenance, slashing the lifetime cost and returning that money to you and your clients' pockets.

That's why we've used aluminium in so many of our products, including the XBeam. Our products are lighter, faster and easier to work with than steel, and have none of the long-term hassles. It just makes sense.



## SPACE

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Space is another finite resource, but one that can get sidelined for the sake of money and time. That said, it's just as important to think about maximising and utilising space effectively as it is to think about time and money, since the three are closely interlinked.

The maths is simple enough: the more weight you have on and from the roof, the more structural support you need to hold it up. A plant room on the roof of an apartment block, for example, might necessitate big columns intruding into liveable spaces, reducing the sellable footprint and the value of the space.

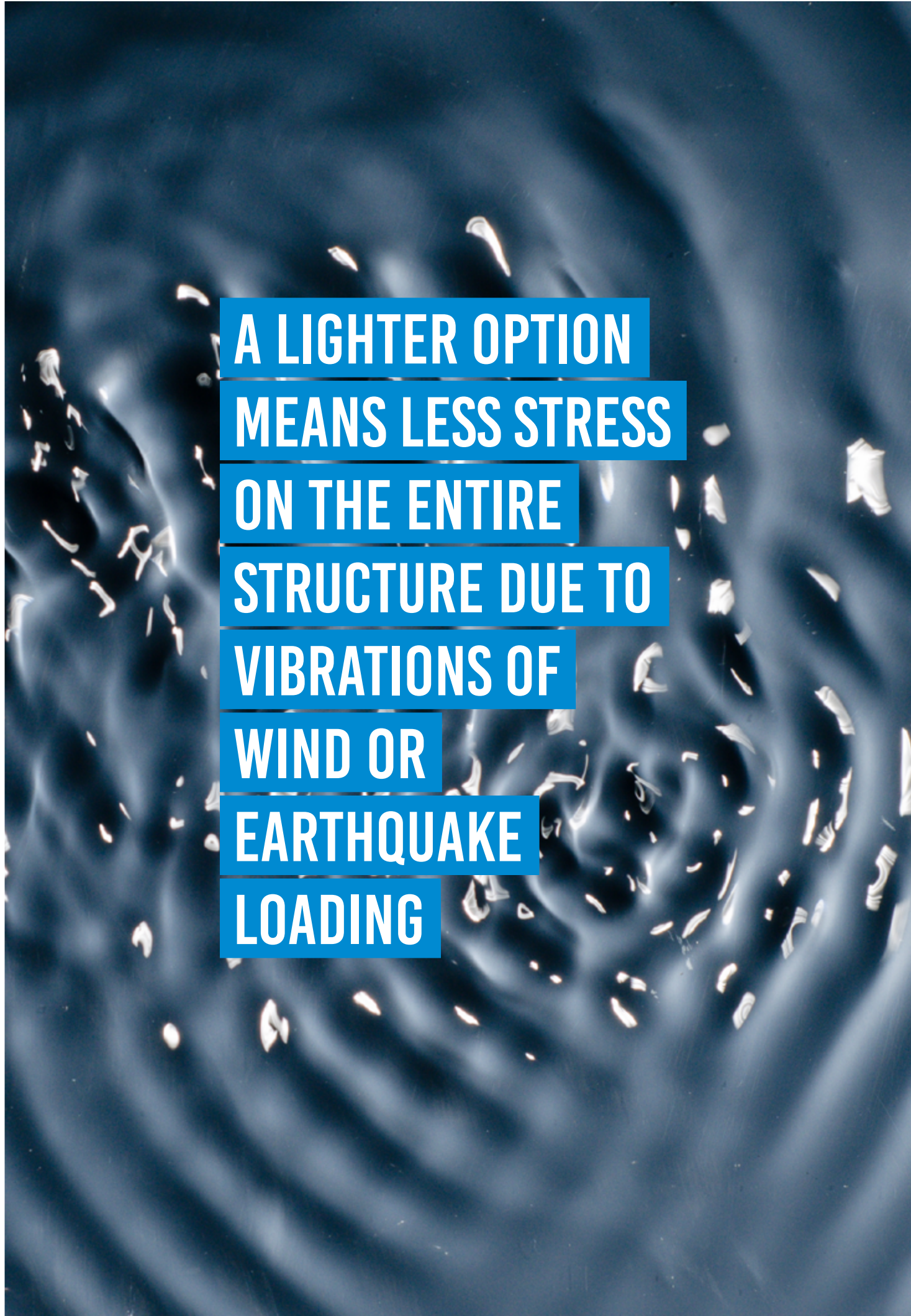
Given that the XBeam is up to 65% lighter than steel and can span more than 10 metres while supporting greater loads than traditional steel beams, there's huge potential for better design. With a lighter structure, you've now gained space - and freed up your design from unnecessary limitations.

## VIBRATION

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There's also an important aspect to weight and height: vibration. This is something we explored in a previous ebook 'Anti-Vibration: Understanding and Isolating Vibration' - and in particular how good engineers and architects design with low centres of mass to reduce stresses on the entire system. This is why

aluminium and composite plant platforms are becoming the preferred choice over steel, especially at height: a lighter option means less stress on the entire structure due to the vibrations of wind or earthquake loading.



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## CASE STUDY

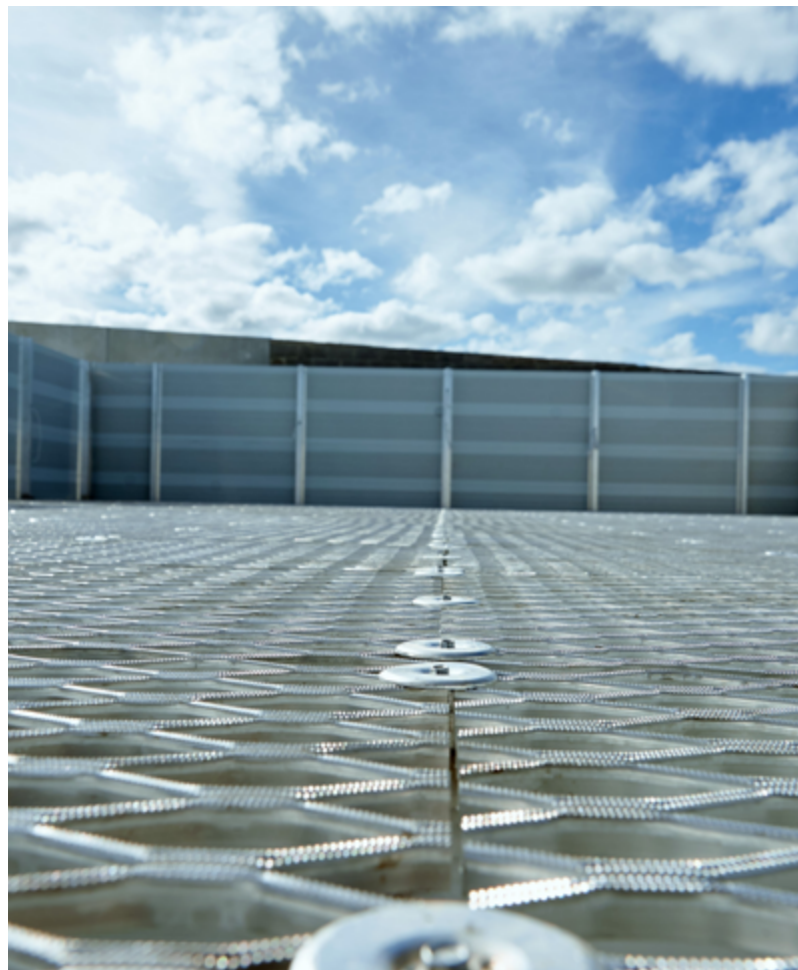
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### **Coles Mount Gambier** South Australia

Originally quoted for aluminium solutions, the new Coles Mount Gambier soon became an opportunity to showcase the span and strength of the XBeam solution. The roof structure had been designed almost to its practical loading limits, and it wasn't possible to load up the portal, so our client had two options: invest in further costly steel work to improve the load bearing of the roof itself, or go for a lighter platform solution with broader span capabilities. That's where the XBeam came in.

What Coles needed was a portal mount system that was custom designed to load off specific, wide-set points. We developed an XBeam solution that utilised support legs on the furthest points of the building, achieving a span of over 9m x9m and loading the relatively light weight of the XBeam platform safely over the strongest points.

When it came to fitting the XBeam, the side of the building where the platform was to sit had limited space. Our solution? Build the platform on the other side where there was more space, and crane it in two parts across the building where it could be easily assembled on the roof. What might have been a three-day job of assembly and fitting was completed in a half day - delivering a fast, efficient and custom solution that saved our client a lot of stress.





## VERSATILE SOLUTIONS

#8

The fact that our aluminium and composite products are lighter than traditional steel, and are designed as modular solutions, means that we've been able to work with spaces where steel wouldn't have been possible.

We're increasingly fitting suspended, rather than on-roof, walkways and platforms since our products are light and can be designed to fit a space (and reduce vibration risks). And since they don't require hot works, there's less interruption of regular business (which, as we've seen, saves time and money).

The modular system is also a real boon for a lot of clients, especially those with existing spaces. Recently we completed a platform inside an existing council pool system, on the second floor of an existing plant among ducting and metal work. The modular design meant we could carry up the platform in parts and by hand, quickly building a new space that simply wouldn't have been possible or practical with a steel (or similar) solution.

## MAXIMISING EXISTING SPACES

#9

The benefits of a lightweight, modular system don't stop there. They're also a great way to make use of an existing space - and save the cost of an overhaul or bulldozing.

In our ebook 'Nine Compliance Hurdles Architects Need to Know', we talked about asbestos roofs and the fact that, while it's long gone from new projects, you're still likely to encounter it in existing spaces. Rather than walk across a brittle, hazardous roof, an aluminium walkway can extend the lifespan of an older building.



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A large, stylized letter 'M' is centered on a textured, grey background. The 'M' is composed of two vertical bars and a curved base, all in a light grey color that blends with the background. The texture of the background is fibrous and slightly uneven.

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