



**Temporary Works
forum**

Promoting best practice in
the construction industry.

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Blog: Temporary Works Forum (TWf)

Are Contractors doing enough to lower embodied carbon in Temporary Works?

All contractors have a duty to use current technology to increase efficiencies, reduce waste and optimize temporary works design; thus reducing cost and carbon hand-in-hand. The aim should be for less time on site, less time in the ground, less muck-away, thinner working platforms, etc. Large contractors have a further obligation to research, test and develop new technology and materials.

The root cause of the poor temporary works design optimization and wastage is a lack of planning on site. This can result from incomplete permanent works design, poor leadership and the under allocation of resource^[1]. However, the outcome is often a firefight that prevents site teams from planning sufficiently in advance and in enough detail.

Temporary works designs and safe systems of work are generally required 'yesterday' in the perpetual push to keep operatives working, thus rendering a stage of optioneering and comparison impossible. The result is a temporary works designer asked to produce a design in no time, with unknown loadings, to unspecified materials and their client - a contractor - surprised by the thickness (say) of the working platform.

The proper management of temporary works, via temporary works registers completed well in advance, combined with detailed briefs and preferred solutions will gain designer confidence for design optimization, e.g.:

- Contractor Inspection and Test Plans (ITPs) may allow designers to specify less conservative parameters (For example, they may reduce the load spread from 45 deg to 35 deg resulting in a working platform of half the thickness)^[2].
- Specify the actual product to use so that the designer can use accurate design parameters (and not a worst-case parameter required to cover all available products on the market).

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¹ 5 Reasons Construction Projects Fail,
<https://www.constructconnect.com/blog/5-reasons-construction-projects-fail>

² Working Platforms - Design of granular working platforms for construction plant: A guide to good practice (TWf2019:02, April 2019), <https://bit.ly/3kzka3R>

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- Give relevant ground investigation data (For example, site ground investigation (GI) is often specified for deep foundations and assists the temporary works designer little in determining the properties of the top layers, better achieved through trial pits).
- The early involvement of suppliers enables efficiency in product selection and the reduction of waste.

Even when the design brief is perfect, and in sufficient time, contractors should summon the confidence to question overdesign at the same time as waking up to value-sharing with designers – both permanent works and temporary works – for optimal solutions. After all, why would a designer allocate risk or spend time and effort in a 30% cost saving when the fee is the same.

The contractor might ask:

- why the rut depth is just 12mm for a temporary haul road;
- why props are equally spaced at 3m c/c when the corners have higher loads;
- why a 25mm deflection criteria is set when the nearest sensitive structure is 5 miles away.

Immediate steps for decision-makers in contractors

It's well established that the key first step to reducing CO₂e emissions is to measure them. If contractors specify low carbon options, accurately calculated by TWDs, then the market will have to change. This is the same market, however, that encourages contractors to buy reusable assets in the full knowledge that they don't have storage facilities and discard them at the end of the project.

Contractors need to 'protest with their wallets'. They should engage with suppliers with buy back, encourage the leasing of temporary work items such as hoarding (which can be returned for reuse) and look after equipment. Where buy back is not feasible, contractors must provide space to store reusable temporary work items and implement management systems to track their delivery to site, uses and subsequent return. They should establish the types of equipment, plant and tools to be prioritized for repair, rather than disposal, and engage with specialist suppliers for support.

Perhaps material exchanges could be facilitated where items that cannot be reused on other sites, or cannot be returned to suppliers, could be advertised? The future should be one where contractors measure and report on the amount of waste generated from temporary works and consider how much is reused, recycled, recovered, or sent to landfill. Lessons learnt, e.g. cases studies, should be freely spread around the industry, demonstrating the environmental and economic benefits of reusing temporary work items.



Action

The TWf is to seek information from contractors about the hire and purchase of proprietary equipment. It wants to determine the obstacles to only hiring temporary works. It wants to know what equipment is most often damaged. Watch this space ...

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on behalf of Temporary Works Forum (TWf) Working Group 32, Low carbon temporary works

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