

Temporary works need more focus during design process, says expert

MARGARET KIRBY



Example of temporary works on a construction site

Design risk assessments may be the weakest link in identifying where temporary construction works may occur and temporary work designers should be involved in inspecting whether temporary works are constructed as per their expectations and specification, recommends an industry expert.

In a comprehensive and practical IOSH construction safety talk, delivered by Michael O'Connor, QEHSS director for Mercury Engineering - who are involved in building and managing complex engineering projects across Europe - spoke of his own hands-on experience of reviewing design risk assessments in his various roles in the construction industry. "They are the first and weakest link across the industry", he said.

Citing some examples of potential gaps in the design risk assessment process, he spoke about the risk of designers not identifying where temporary works are required, where they should be coordinated with the permanent design, safety-critical anchors not being identified, and non-standard temporary work hazards not being recognised, such as cantilevers and water pressure/uplift.

Temporary works guidance

Speaking about the dangers involved in temporary works, he emphasised the primary risk is structural collapse, which could lead to serious injury or death, and he stressed the need for good communication and identification of hazards as early in the process as possible, including all relevant parties. Referring to the Construction Industry Federation (CIF) guidance *Management of the Design of Temporary Works*, he recommended that all health and

safety professionals should familiarise themselves with this concise, clear and user-friendly guidance.

Management of the Design of Temporary Works, published by the CIF in 2021, defines temporary works (TW) as engineering solutions designed by (or on behalf of) the contractor to allow or enable the permanent works to be constructed safely and without harming the environment, by providing protection, support, or access and which might or might not be left in place after the completion of the works. There are four categories for temporary works, which set out the level of design check depending on the nature, scale and complexity of the temporary works. The categories run from category 0 (least onerous) to category 4 (most complex).

Examples of temporary works include earthworks – trenches, excavations, temporary slopes and stockpiles. Structures can include formwork, falsework, propping, façade retention, needling, shoring, edge protection and more. Category 0 can include, for example, basic scaffold and formwork less than 1.2 metre, whilst category 1 can include formwork up to 3m high (where the top restraint is assumed, but not to new concrete), and more.

Temporary works roles

Speaking about the roles and responsibilities identified in the guidance, Michael made the point that the 'permanent works designer' should liaise with the Project Supervisor Design Process (PSDP), to identify what temporary works will exist as a consequence of their design, and include this in their design risk assessment. "All risks need to be considered - even if it is forming a loading bay which is only six inches off the ground, it needs to be designed", added Michael.

Moving onto the role of the senior site manager (SSM), he said that this should be the most senior person on site responsible for the project, as they make formal appointments of competent persons to control temporary works on site. They also need to have knowledge of the competencies of the 'temporary works co-ordinator', to ensure they have the necessary training, experience and knowledge.

Turning to the role of the 'temporary works co-ordinator', Michael relayed that he wanted to "take the fear out of this

role”, as he was aware that many tended to step away from it, after they had been trained. Emphasising a key purpose of the role is ensuring people do what they are tasked to do in all activities related to temporary works, and verifying they are competent in that specific element of temporary work, was a critical part of the job.



Construction Industry Federation Management of the Design of Temporary Works guidance

Speaking about lessons learned, from his own experience with temporary works, Michael strongly recommended that temporary work designers should be involved in inspecting temporary works are constructed as per their expectations and specifications.

This can be done remotely if needed, especially if the work or designer is based in another country, via a virtual tour or site video, and must be confirmed in writing from the temporary work contractor that their appointed designer has approved the construction of same in a specific location on a specific date. “Mercury have brought in this requirement since December 2021, and it has been a big change, but it is an example of exercising designers more, and can be put into the contract”, Michael suggested.

Safety critical anchors

Another area which requires attention, Michael noted, was the topic of ‘safety critical anchors’. Recalling a historical construction industry workplace accident in Ireland, he outlined how a worker had been killed due to the shearing of bolt(s), and that industry had learned behaviours by an individual can put the structure at risk if the correct anchors/fixing configurations are not installed.

Since then, the Code of Practice for the Design and Installation of Anchors has been put in place, identifying safety critical situations where the failure of connections would cause risk of human injury or death. The code also provides template forms, Anchor/FM-01, 02 and 03, to be used related to the design, specification and installation of anchors.

The first form, Anchor/FM-01, helps the designer to gather the information that is necessary to complete the anchor design. Alternatively, the information can be communicated by including the anchor requirements on drawings. The second form, Anchor/FM-02, communicates the anchor specification to the contractor. Alternatively, the information can be communicated using the anchor manufacturer’s computer printout or hand calculations.

Emphasising that anchors installed, should be as designed, Michael reassured listeners that even if there were a thousand applications of an anchor, only one ‘Anchor/FM-01’ form needed to be completed, which should alleviate some of the paperwork required. The third form, Anchor/FM-03, is used as a checklist by the contractor supervising the installation of the anchor on site.

Summarising his key takeaway message for his audience, Michael re-iterated the importance of temporary works designers inspecting their temporary works are designed as required, and the introduction of this step in the process could prevent potential structural failures that could cause injury or death.

Further information

- Management of the Design of Temporary Works, <https://cif.ie/download/cif-management-of-temporary-works-design/>
- Code of Practice for the Design and Installation of Anchors, https://www.hsa.ie/eng/Publications_and_Forms/Publications/Codes_of_Practice/Code_of_Practice_for_the_Design_and_Installation_of_Anchors.html