

# Monthly Meeting 11<sup>th</sup> February 2013



## ‘Temporary Works’

Jan Andresen – HM Specialist Inspector of H&S (Construction Engineering).

Jan has been with the HSE for 11 years, and is a structural engineer by training.

### **What is ‘Temporary Works’?**

Jan used a range of photographs of real examples of temporary works situations to illustrate the contraptions people have rigged up and the many different forms of temporary works.

### **Definition of ‘Temporary Works’:**

There are a number of definitions, including BS5975:2008, but Jan said his definition would be; anything the contractor has to do (including hoardings, welfare facilities, services, platforms, earth support, access, propping and shoring) to build the structure.

### **Typical Problems Involving ‘Temporary Works’:**

- No planning or procedures
- No design or poor design
- Lack of competency on behalf of the contractor/developer
- No temporary works equipment available, or what is available is not being properly used.

Jan showed some further slides which demonstrated bad practice found across the UK, e.g. inadequate foundations; lack of competency; scaffolding improperly erected; no proper planning by a competent person.

### **Who is a Competent Person?**

It is a legal requirement that individuals appointed to the role of Temporary Works Co-ordinator (TWC) and Temporary Works Supervisor (TWS) are competent. For Jan, competency is about professional as well as technical training and also knowledge, experience (appropriate to the complexity of the project) and authority. There is no formal qualification for the roles however, a number of organisations offer training to help in equipping individuals to undertake the role.

### **Hoardings:**

The Temporary Works Forum (TWf) [www.twforum.org.uk](http://www.twforum.org.uk) has recently published a comprehensive guide to the design of site hoardings. The Guide is entitled 'Hoardings – a guide to good practice', and is free to download. Wind conditions are a major factor in the use of hoardings and the stability of the hoarding which involves the posts being set in concrete in the ground. Heras fencing is an example of a hoarding, but it must never be covered in signs because in windy conditions, there can be problems.

### **Excavations:**

Jan commented that the '4 foot rule' (1.2 metres) is still quoted, but in fact it is now extinct. If there is no shoring in an excavation that someone is working in, then a Prohibition Notice will be served unless there is a suitable and sufficient risk assessment.

### **Soil Failure:**

Jan noted that soils fail in different ways. Stiff clay soil will break into lumps whilst soft clays and sands will slump. This has been a particular problem of late in London where space is at a premium. The current trend is for home owners to extend by building underneath their home. Large swimming pools or gyms are being built underground in a new basement. Such jobs have become the bane of HSE Inspectors lives! Jan gave an illustration of some work in London involving an old church. The failure to properly underpin and to survey an existing wall led to collapse of a section of wall onto a worker. Jan added that where domestic jobs are carried out, the contractors can often overreach themselves.

### **Construction (Design and Management) (CDM):**

CDM Regulation 31 requires "all practicable steps" to be taken to prevent an excavation collapse as opposed to 'reasonably practicable' steps. Jan took us back to 1959 and a particular bridge in Manchester. The incident became known as the 'Barton Bridge Disaster'. The incident involved a scaffold collapse. At the inquest, it was revealed that the scaffold had not been erected according to the drawings. There was a lack of lateral bracing and an engineer had not looked at the final design. A similar tragic incident happened a second time and the coroner's comments were particularly damning. An incident in Cardiff around 10 years ago involved the collapse of sheeted scaffolding around a building during high winds. The investigation revealed that there was an

insufficient number of ties and that the information on how to construct them was unclear.

### **Temporary Works Guidance:**

- Marples, F. The role and competence of temporary works coordinators. Institution of Civil Engineers, Civil Engineering Briefing. 10.1680/cien.2011.164.2.53
- SIM 02/2010/04  
[http://www.hse.gov.uk/foi/internalops/sims/construct/2\\_10\\_04.htm](http://www.hse.gov.uk/foi/internalops/sims/construct/2_10_04.htm)
- BS 5975:2008 + A1. 'Code of Practice for Temporary Works Procedures and the Permissible Stress Design of False Work'.
- BS5531:1988 Code of Practice for safety in erecting structural frames (*Withdrawn but gives useful advice*)
- 'Preventing Catastrophic Events in Construction' RR834  
[www.hse.gov.uk/research/rrhtm/rr834.htm](http://www.hse.gov.uk/research/rrhtm/rr834.htm) free to download.

CDM Regs – that apply to the design of temporary works as well as permanent works.

### **Temporary Works Coordinator (TWC):**

Jan commented that it's sometimes easier to think of temporary works as a project within a project. The contractor is effectively the client within a temporary works contract, and so the TWC is an important role and not unlike that of the CDM Coordinator but requires detailed technical input to the project.

### **Temporary Works Procedure:**

The duties of the TWC are set out in Clause 7.2.5 of BS5975. Of those duties, there are only two items that are wholly administrative:

- Maintaining a temporary works register and
- Registering or recording the drawings calculations and other relevant documents relating to the final design.

All other duties require the application of engineering principles and judgement.

### **Temporary Works – What is the HSE Doing?**

On-site, the HSE is looking for the following:

- Temporary works procedure
- Temporary works coordinator - What is their background/experience?
- Temporary works register

- Is there a design brief? - covering the purpose of the temporary works.
- Has the work been designed?
- Has the design been independently checked?
- Are the arrangements and procedures commensurate with the project?

Practically, the HSE are looking for adequate lateral stability because lateral bracing is as important as vertical support. The workforce needs to be competent to do the work. There must be an evident appreciation of the true force of the wind and the HSE will pay particular attention to where ad hoc changes have been made.

### **TW Design Checks:**

The HSE SIM categorises temporary works as 'high', 'medium' or 'low' risk. The categories are a starting point to assess the level of input needed for design and checking, basically, if the consequences of the temporary works going wrong are high, so is the risk.

### *Members' Questions*

**Brian Dunckley, retired consultant**, commented on the confusion that could arise due to the number of scaffold codes (BS5973, BS EN 12811, TG:20 etc.) and the changing use of scaffolding. Jan reminded us that the Code of Practice is a *guide* only. He added that BS5973 was withdrawn when BS EN 12811 came in. HSE are concerned with safety, not in checking that a scaffold was built to a particular code. In the case of a low rise standard scaffold, Jan said that he would have no problem with the scaffold being built to the old code if it was safe. However, if the scaffold is not a standard configuration, and therefore needs to be designed, then the design should be to one of the current codes (either TG:20 or BS EN 12811).

**William Clive of PSN** enquired whether, in the case of hoardings, there is a standard to which the hoarding should be erected? Jan said that hoardings should have a design. Members should check out the Guide issued by the Temporary Works Forum (see above page 2). Temporary fences and hoardings need to be designed according to the job being carried out. Designed and not just built. It may be possible to utilise some information that the manufacturer has produced.

**Gerry Mulholland, Construction Committee Chair and Head of H.S.& E, British Gas and New Energy** enquired about the competence of people generally with regard to temporary works and potential outcomes if all goes wrong. Jan said that most general builders/contractors have some empirical knowledge which they apply to most situations however, that knowledge may not always be appropriate. Gerry probed further, and asked whether many temporary works issues have emerged during the HSE's blitz campaign. Jan said that he had had a few messages/requests for information from fellow inspectors. Jan commented that there is evidence of some good practice out in the field.

**Neil Boon from Carillion and BHSEA Construction Committee Member** asked about the designer's duties and 'brick and block work' which is often designed for the permanent rather than the temporary situation. Jan said that in the case of a load bearing masonry structure, it should be made to be stable throughout the work – whether it is a temporary project or not.

**Gerry Mulholland** noted that there were a number of CDMC's in the room today, what would be your comment regarding their role? Jan said that a lot of CDMC's are often *not* involved past the design stage. In the case of complex, high risk jobs, the CDMC has to make sure that the temporary works designer works alongside the permanent works designers.

**Richard Habgood**, in his role as **President of ABS** noted that the role of the CDMC is currently being revised.

**Peter Bowers of ICDM** (and Chinese Consultant) commented that it is important that the initial design takes account of the permanent design. It is vitally important that the designers coordinate and communicate. Particularly when there is pressure from the QS (and others) on the TWC to get things signed off quickly. Timescales are often short and the TWC can be in a very exposed position. TWC needs to stand their ground and be tough enough to withstand such pressure coming from within their own organisation and from external sources.

**A Member** asked whether there was any correlation between the incidents shown by Jan in his slides and the absence of a TWC. Jan reiterated that domestic jobs are the problem area. Such jobs are often on smaller sites, with a client who knows nothing about the process, a builder from the local directory etc. etc. It's a different marketplace with domestic jobs and difficult for the HSE even to find out about them.

This concluded Jan's presentation, and the Chair asked Members to show their appreciation in the usual way.

