

# Temporary Works Toolkit

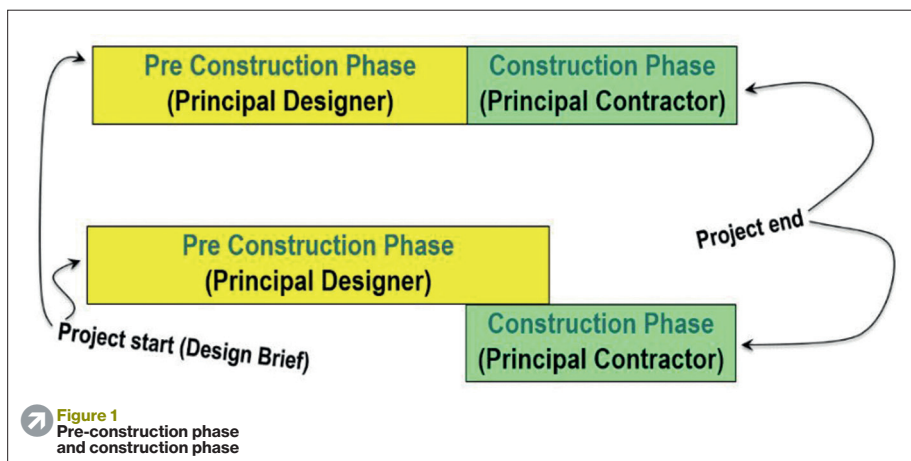
## Part 9: The role of the principal designer with reference to temporary works

The Temporary Works Toolkit is a series of articles aimed primarily at assisting the permanent works designer with temporary works issues. Buildability – sometimes referred to now as ‘construction method engineering’ – is not a new concept and one always recognised as vital to the realisation of one’s ideas; it ought to be at the forefront of an engineer’s mind.

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**John Banks** examines the role of principal designer under CDM 2015 and discusses how this relates to temporary works design on a project.



### Introduction

The second article in this series<sup>1</sup> examined the impact of the Construction (Design and Management) Regulations 2015 (CDM 2015) and temporary works on permanent works design in the UK. This article looks in more detail at the role of the **principal designer** under CDM 2015.

The role of principal designer should encompass working with clients and designers, during the pre-construction phase, to produce efficient designs that can be built,

used and maintained healthily and safely by contractors who are provided with sufficient information on reduced significant residual risks to ensure, within reasonable bounds, that construction workers can go home safe and as healthy as they arrived for work in the morning.

The word ‘designers’ means both permanent works designers and temporary works designers. It refers to *all* designers.

Almost anybody can be a designer. You don’t have to be appointed to the role (unlike

a principal designer or principal contractor). You become a designer because you are specifying – it’s as simple as that.

The principal designer role only occurs during the pre-construction phase, which is any period where design is being undertaken and on most projects will continue well into the construction phase. CDM 2015 talks as if the pre-construction phase stops and the construction phase begins (as shown in the top part of Figure 1) but, in practice, most projects will have design continuing into the construction phase (as shown in the bottom part of Fig. 1). For many projects, the pre-construction phase can last until the end of the construction phase.

### Health and safety risks

Managing health and safety risks is a large part of the responsibility of being a principal designer and designer. Since the initial advent of CDM in 1995, construction site safety in the UK has improved vastly; particularly on the larger projects. The same cannot be said for health. Slightly fewer than one person per week dies on a construction site due to safety reasons (we call them accidents, but the term is ill-advised). Over 100 construction workers per week die from ill-health caused by their work in construction. Designers need to concentrate on the effect their design has on the health of construction workers while not forgetting safety.

### Who can be a principal designer?

The principal designer must be a designer, appointed in writing by the client as principal designer (an e-mail will do) with control

over the health and safety elements of the pre-construction phase. One of the design team, perhaps the lead designer, may be best placed to undertake the role, but the principal designer does not have to be a designer on the project. Note the sensible flexibility in CDM 2015 to cater for our multifaceted and amorphous construction industry where projects are unique.

**Delivering the role of principal designer**

The requirements for the role of principal designer are set out in **Box 1** and **Figure 2**. All of the principal designer's duties must be undertaken proportionally for every appointment for every construction project.

'Proportionally' means that all of the duties listed in **Box 1** have to be undertaken but, depending on the size and complexity of the project, the time take to discharge individual duties may vary from just minutes to several days.

For example, input into a Highways England Health and Safety File on several kilometres of trunk road complete with bridges will take months of work; for small projects, the Health and Safety File may be a single page and take

less than an hour to complete.

Neither CDM 2015, nor the accompanying guidance<sup>2</sup>, explain how principal designers and designers (permanent and temporary) determine if the risk management action they have undertaken is compliant. In the absence of such advice, it is suggested that the principal designer and designers:

- follow contemporary industry practice where available; if it is available, but not adopted for good reason, provide an explanation for record purposes
- where no contemporary advice is available, use engineering judgement stemming from capable individuals.

**Necessary documentation**

The best way to discharge the role of principal designer is via a set of necessary and appropriate documents. These are:

- client brief
- resource schedule and associated fee (charge a reasonable fee for the role of principal designer)
- pre-construction information
- design 'significant residual risk' schedules
- Health and Safety File.

**Client brief**

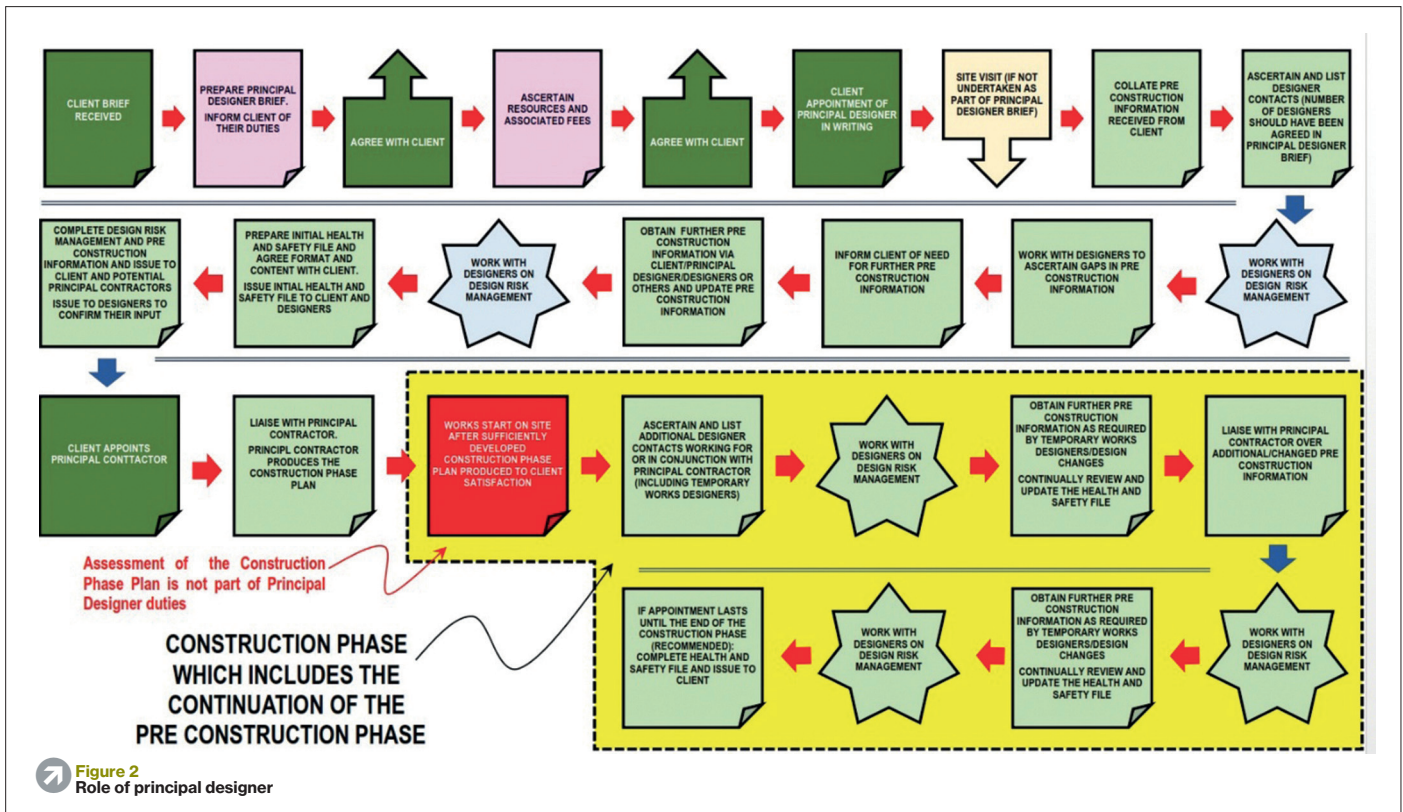
You should start with the client brief for the project. There are informed clients that can provide a great brief, but there are many clients with little construction knowledge who require assistance from the principal designer.

**Resource schedule and fees**

Using the agreed client brief (after necessary discussion), a resource schedule should be produced, showing the resources required to undertake the role of principal designer against the project programme in order to determine a fee for the role. Always charge an appropriate fee for the principal designer role.

**Pre-construction information**

CDM 2015 does not demand this is in writing, but how else will the principal designer manage this process for most projects? Pre-construction information means, initially, information in the client's possession (or reasonably obtainable) which is relevant to the project, with an appropriate level of detail and proportionate to the project risks involved. Pre-construction information is subsequently and continuously used by



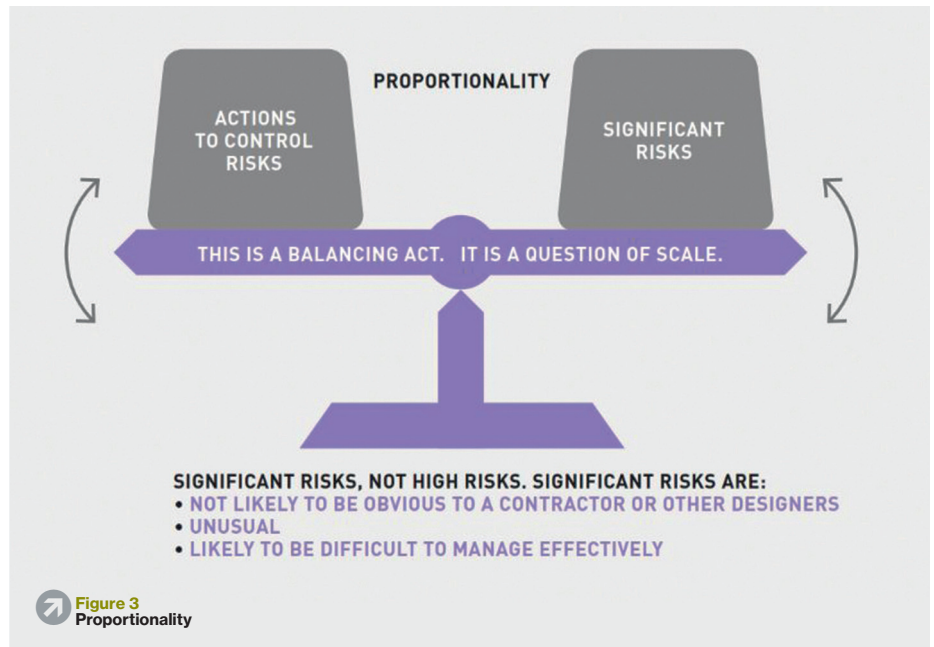
designers who, working under the health and safety control of the principal designer, will add to and recirculate information to other designers (this should include both permanent works and temporary works designers) and contractors.

The principal designer should:

- ensure that immediate information from the client is circulated to designers at the start of the project
- ensure that information gaps are identified by designers and the principal designer (continuous process)
- managing the distribution of further information as it becomes available (continuous process)
- distribute information supplied by designers on health and safety hazards from the design and construction process and how they will be addressed (continuous process)
- distribute information to the principal contractor to allow incorporation into the Construction Phase Plan and management of significant residual health and safety hazards (continuous process).

**Design significant residual risk schedules**

The pre-construction information should continue to be developed by the principal designer during the pre-construction phase. All designers need to be identified and listed to enable appropriate communication. Supplementary pre-construction information (including appropriate significant residual



risks) provided by designers as the design of the project progresses should be relevant, appropriately detailed and proportionate to the risks involved (Figure 3).

Permanent works designers produce information in conjunction with the principal designer and should provide appropriate pre-construction information to enable the temporary works designers to undertake their design. Part of a temporary works designer's duty, in conjunction with the principal designer, is to assess the pre-construction information for gaps, such as,

say, lack of an appropriate site investigation. As part of the temporary works designer's role, they should add design information into the pre-construction information which is shared with the principal contractor to inform the Construction Phase Plan and provide information for risk assessments and method statements to allow construction work to be undertaken healthily and safely. The temporary works designer may need to supply information to the principal designer/principal contractor for the project Health and Safety File.

**BOX 1: THE ROLE OF PRINCIPAL DESIGNER**

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|---|--|---|--|
| <ul style="list-style-type: none"> <li>● Plan, manage, monitor and coordinate health and safety matters to ensure that, so far as is reasonably practicable, the project is carried out without risks to health or safety</li> <li>● Consider the general principles of prevention, Construction Phase Plan and/or Health and Safety Files when:             <ul style="list-style-type: none"> <li>● design, technical and organisational aspects for items of work take place simultaneously or in succession</li> <li>● estimating the period of time required to complete such work or work stages</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>● Identify, eliminate or control, so far as is reasonably practicable, foreseeable risks to the health or safety of any person:             <ul style="list-style-type: none"> <li>● carrying out or liable to be affected by construction work</li> <li>● maintaining or cleaning a structure</li> <li>● using a structure designed as a workplace</li> </ul> </li> <li>● Ensure all designers comply with their duties</li> <li>● Ensure, in relation to the pre-construction phase, all persons cooperate with the client, principal designer and each other</li> <li>● Assist the client in provision of</li> </ul> | <ul style="list-style-type: none"> <li>pre-construction information</li> <li>● Provide pre-construction information, promptly and in a convenient form, to every designer and contractor appointed, or being considered for appointment</li> <li>● Liaise with the principal contractor and share information relevant to monitoring and coordination of health and safety matters during the construction phase</li> <li>● Prepare a Health and Safety File during the pre-construction phase and review, update and revise as necessary, and:             <ul style="list-style-type: none"> <li>● if the principal designer appointment is to the end</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>of the construction phase, hand the completed Health and Safety File to the client</li> <li>● if the principal designer appointment ceases before the end of the construction phase, hand the Health and Safety File to the principal contractor for completion</li> <li>● Not accept the principal designer appointment unless capable</li> <li>● Provide comprehensible information or instruction as soon as practicable</li> <li>● Cooperate with others on the site and adjoining sites</li> <li>● Be satisfied that the client is aware of their duties under CDM 2015</li> </ul> |
|---|--|---|--|

The principal designer should manage the process of identifying residual significant health and safety risks across all designers by using design risk schedules. The principal designer should ensure that designers contribute to the agreed project design risk management method (using a consistent *pro forma*). Designers must talk, communicate by other means and keep all appropriate parties in the loop. They must provide information about their design for construction and the Health and Safety File (Figure 4).

### Health and Safety File

The Health and Safety File should highlight significant health and safety risks for future construction work. The principal designer must prepare the initial Health and Safety File and review, update and revise it as the project progresses. The principal designer must pass the completed Health and Safety File to the client to keep if their appointment lasts until the end of the construction phase. If the principal designer's appointment finishes before the end of the project, the partially completed Health and Safety File must be passed to the principal contractor to complete.

With the role of the principal designer ended, i.e. at the end of the pre-construction phase, the principal contractor has responsibility for reviewing, updating and revising the Health and Safety File and passing it to the client when the project finishes. Temporary works designers may have to provide information for the Health and Safety File.

### Advice to temporary works designers

When undertaking temporary works design, find out who the principal designer is. For most projects there will be more than one contractor on site and, therefore, a principal designer should have been appointed. Demand sufficient pre-construction information to enable you to successfully eliminate, reduce and control risks emanating from your design. Sufficient pre-construction information may already be available as the permanent works designers and principal designer should have considered the provision of temporary works and provided information on significant residual risks. If this information is not available (for instance, you require further site investigation) you have every right to demand this is provided, although you may well end up arranging for this provision.

Work with the principal designer to provide information for the principal contractor on significant residual risks that need to be taken into account when the temporary works are being constructed, used or dismantled. If necessary, provide information for the Health and Safety File on significant residual risks relating to temporary works necessary for maintenance/demolition.

### Recommendations

It is strongly recommended that both permanent works and temporary works designers read the Health and Safety Executive's document L153<sup>2</sup>, which contains the CDM Regulations and guidance, and

the Construction Industry Training Board's industry guidance<sup>3</sup>.

### Acknowledgements

Figures 2–4 in this article are derived from the *Principal Designer's Handbook and Guide to the CDM 2015 Regulations*<sup>4</sup>, which is available in digital and hard copy versions from [www.aps.org.uk](http://www.aps.org.uk).

*John Banks is a Past President and Honorary Fellow of The Association for Project Safety and was part of the Handbook editorial team. He is a corresponding member of the ICE Health and Safety Expert Panel.*

### REFERENCES

- ▶ 1) Carpenter J. (2016) 'Temporary Works Toolkit. Part 2: CDM 2015 and the responsibilities of permanent works designers with regard to temporary works', *The Structural Engineer*, 94 (11), pp. 34–36
- ▶ 2) Health and Safety Executive (2015) *L153: Managing health and safety in construction: Construction (Design and Management) Regulations 2015: Guidance on Regulations* [Online] Available at: [www.hse.gov.uk/pubns/priced/L153.pdf](http://www.hse.gov.uk/pubns/priced/L153.pdf) (Accessed: 31 March 2016)
- ▶ 3) CITB (2017) *Construction (Design and Management) Regulations 2015: Industry Guidance* [Online] Available at: [www.citb.co.uk/health-safety-and-other-topics/health-safety/construction-design-and-management-regulations/cdm-guidance-documents/](http://www.citb.co.uk/health-safety-and-other-topics/health-safety/construction-design-and-management-regulations/cdm-guidance-documents/) (Accessed: 31 March 2016)
- ▶ 4) Association for Project Safety (2016) *Principal Designer's Handbook and Guide to the CDM 2015 Regulations*, London: RIBA Publishing

### FURTHER READING

- ▶ Temporary Works Forum (2017) *Information Sheet No. 3: The Construction (Design & Management) Regulations 2015: Principal Designer: Guidance on Temporary Works* [Online] Available at: [www.twforum.org.uk/media/89339/twf\\_information\\_sheet\\_no.\\_3\\_final\\_10.1.17.pdf](http://www.twforum.org.uk/media/89339/twf_information_sheet_no._3_final_10.1.17.pdf) (Accessed: February 2017)

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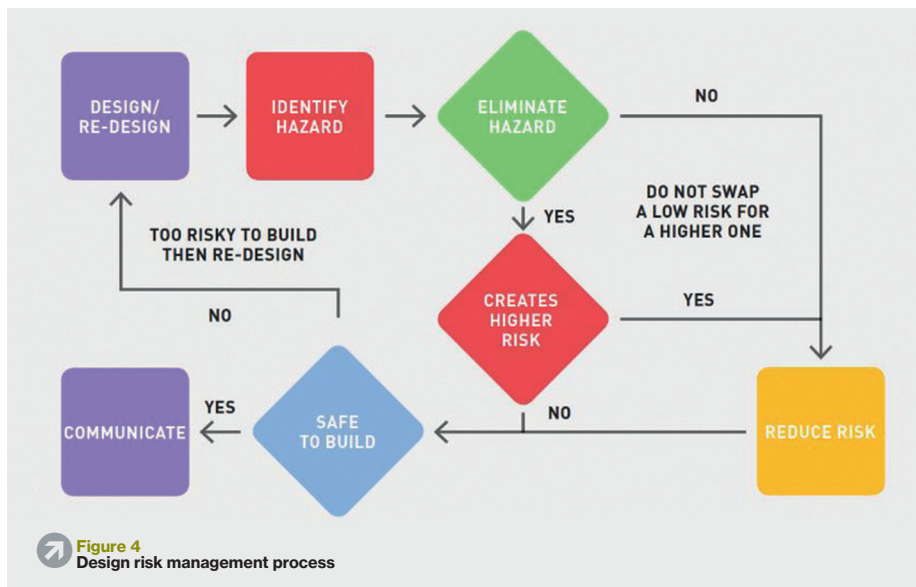


Figure 4  
Design risk management process