

Temporary Works Standard

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1 Introduction

The purpose of this standard is to set out the requirements for all Unitas Business Streams carrying out construction activities to enable temporary works to be identified, planned, designed, constructed, loaded, maintained and dismantled safely. This standard complies with, or exceeds, the intent of BS5975:2008+A1:2011 "Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework".

This standard must be read in conjunction with the Unitas Temporary Works Minimum Standards and Temporary Works Technical Guidance Notes (as listed under Section 2.1.2).

2 Scope

The scope of the SHEMS covers all persons, workplaces and operations in our business.

Exceptions will be documented through a SHEMS Appendix B process ([SHEMS-FOR-GR-999](#)), authorised by the SHE Director responsible for coordinating Safety, Health and Environmental Management.

Unitas SHEMS Manual ([SHEMS-STD-GR-003](#)) provides guidance and signposting for the compliance, implementation, monitoring, audit and review of our systems, demonstrating continual improvement and achievement of Company objectives.

For the purposes of this standard, temporary works (TW) are all works covered by the definition in section 2.2.1 with the exception of Traffic Management.

2.1 References and Acronyms

2.1.1 External References

The external documents that can provide useful guidance regarding TW include:

- BS 5975 Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework (BSI).
- TG20:13 Guide to Good Practice for Scaffolding with Tubes and Fittings (NASC).
- Formwork, A Guide to Good Practice (Concrete Society).
- The Construction (Design and Management) Regulations 2015 (HMSO).
- Hoardings – A Guide to Good Practice (TWf).
- Stability of Reinforcement Cages prior to Concreting (TWf).

2.1.2 Internal References

The internal documents that can provide useful guidance regarding TW include:

1. Temporary Works Checklists

- Review of Safe System of Work ([SHEMS-FOR-GR-141](#))
- Soffit Formwork ([SHEMS-FOR-GR-142](#))
- Excavations & Trench Support ([SHEMS-FOR-GR-143](#))
- Access Scaffolds ([SHEMS-FOR-GR-144](#))
- TW Audit Checklist ([SHEMS-FOR-GR-145](#))

2. Temporary Works Technical Guidance Notes (TGNs)

- TGN TW01 Site Hoardings (KBA-GU-0035)
- TGN TW02 Lifting of Reinforcement Cages (KBA-GU-0032)
- TGN TW03 Plant Working Platforms (KBA-GU-0033)
- TGN TW04 Battered & Benched Excavations (KBA-GU-0034)

3. Temporary Works Minimum Standards

- Design Briefs (SHEMS-MST-DPS-047)
- Elements Standard (SHEMS-MST- DPS -048)
- Foundations (SHEMS-MST- DPS -049)

4. Temporary Works Forms

- Appointment of Temporary Works Co-ordinator ([SHEMS-FOR-GR-009](#))
- Appointment of Temporary Works Supervisor ([SHEMS-FOR-GR-010](#))
- Temporary Works Control Register ([SHEMS-FOR-GR-060](#))
- Temporary Works Design Brief ([SHEMS-FOR-GR-061](#))
- Temporary Works Check Certificate ([SHEMS-FOR-GR-062](#))
- Permit To Load ([SHEMS-FOR-GR-063](#))
- Permit To Strike / Unload / Dismantle ([SHEMS-FOR-GR-064](#))
- Report of Inspection (Scaffolds) ([SHEMS-FOR-GR-065](#))
- Report of Inspection (Excavations) ([SHEMS-FOR-GR-165](#))
- Project SHE Register ([SHEMS-REG-GR-090](#))

2.1.3 Acronyms

SHE	Safety, Health & the Environment
SHEMS	SHE Management System
TW	Temporary Works
BSi	British Standards Institute
NASC	National Access Scaffolding Confederation
HSE	Health & Safety Executive
TGN	Technical Guidance Note
CDM	Construction (Design Management)
TWA	Temporary Works Advisor
DI	Designated Individual
BM	Bid Manager
OD	Operations Director
PM	Project Manager
TWC	Temporary Works Co-ordinator
TWD	Temporary Works Designer
TWDC	Temporary Works Design Checker
CITB	Construction Industry Training Board
TWCTC	TWC Training Course
TWSTC	TWS Training Course
HNC	Higher National Certificate
HND	Higher National Diploma
SSW	Safe System of Work
TWS	Temporary Works Supervisor
WS	Works Supervisor

2.2 Definitions

2.2.1 Temporary Works

Temporary works is an “engineered solution” used to:

- Support or protect either an existing structure or the permanent works during construction work; or
- Support an item of plant or equipment, or the vertical sides or side-slopes of an excavation during construction work on site; or
- Provide access whilst undertaking construction work.

The temporary works are normally removed from site, or on occasion left in place as part of the permanent works. Construction work includes the execution, completion, and maintenance during the construction and/or demolition of permanent works. Temporary works also includes the temporary loading of the permanent works, as well as the permanent works in an intermediate state.

2.2.2 Construction Works

For the purposes of this standard, construction work is defined in the same way as Regulation 2 of the CDM Regulations. It is wide ranging and covers any building, civil engineering or engineering construction work. It includes:

- the construction, alteration, conversion, fitting out, commissioning, renovation, repair, upkeep, redecoration or other maintenance, de-commissioning, demolition or dismantling of a structure;
- site clearance, exploration, investigation and excavation;
- the assembly/disassembly on site of prefabricated elements to form a structure;
- the removal of a structure, or of any product or waste resulting from demolition or dismantling of a structure; and
- the installation, commissioning, maintenance, repair or removal of mechanical, electrical, gas, compressed air, hydraulic, telecommunications, computer or similar services.

2.2.3 Significant & Non-Significant Items of TW

Significant Items of Temporary Works - are those identified in Figure 1 and Table 1. The list of items from Figure 1 and Table 1 are not exhaustive, and other items of TW not identified may also need to be considered as Significant Items of TW.

Non-Significant Items of Temporary Works - are those that fall below the Low risk level in Table 1, i.e. they have little or no design input. These items do not need to be included on the TW Control Register, as these items will be subject to the same standard safe working practices as all other site operations.

Non-significant TW items may include:

- Aluminium mobile access towers used and erected to manufacturer’s recommendations.
- Ground level slab edge shutters less than 300mm deep.
- Shallow excavations (less than 600mm deep) that are in good ground.

If there is any doubt as to the applicability of this, guidance should be sought from a temporary works designer/structural engineer.

Low Risk - are TW used in low risk situations and where there is little interface with the public. They usually incorporate standard equipment constructed in accordance with relevant Standards or Manufacturers requirements.

Medium Risk – are TW used in medium risk situations and those that have a significant interface with the public.

High Risk – are TW one-off schemes of unusual temporary works that may involve the fabrication of materials and equipment to produce a non-standard solution. They also include TW schemes that have a major impact on public safety or the national infrastructure.



Figure 1: Types of Temporary Works

3 Process

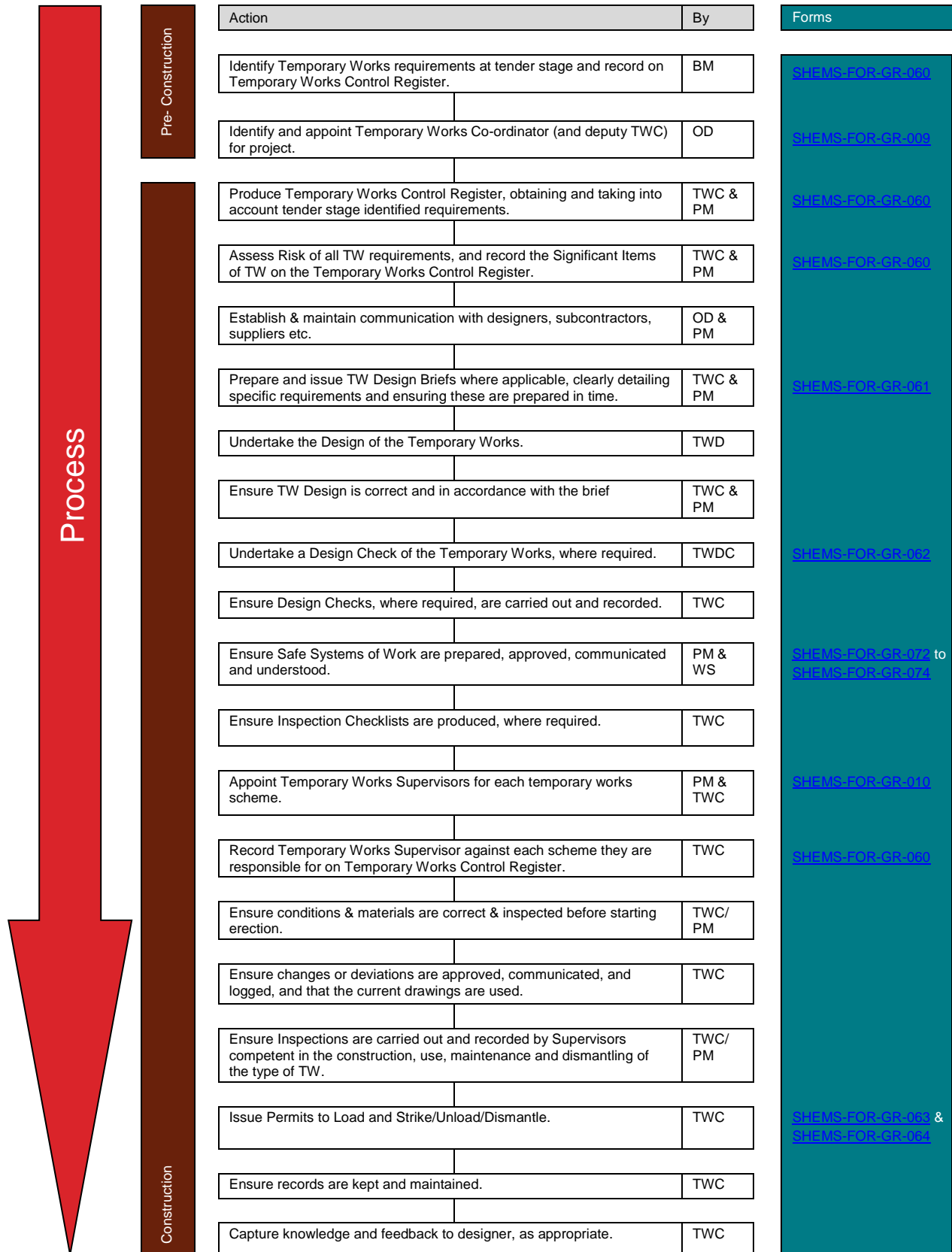


Figure 2: Temporary Works Process

4 Unitas Requirements

4.1 Responsibilities

4.1.1 Designated Individual (DI)

The Unitas Operations Director responsible for co-ordinating SHE is the Designated Individual (DI) under this standard, and is accountable for ensuring the implementation of this Temporary Works Standard within each of the Business Streams within the Business.

4.1.2 Bid Manager (BM)

The Programme and Procurement Manager must ensure all items of Temporary Works (TW) considered during the tender process are identified and detailed sufficiently such that risk is minimised. If necessary the bid must be qualified. A list of the identified TW, together with drawings, methods, design requirements, programme etc. must be passed to the project team on project award, using the Temporary Works Control Register (form [SHEMS-FOR-GR-060](#)).

4.1.3 Director Responsible for SHE (DI)

The DI is accountable for ensuring the appointment of competent TWCs and necessary deputies. TWCs and their deputies are to be appointed in writing, using Appointment of Temporary Works Co-ordinator form ([SHEMS-FOR-GR-009](#)). The Operations Manager must ensure that the proposed TWC is competent to carry out the role. Prior to appointing the TWC, the Competency Assessment must be completed by the proposed TWC and be reviewed by the DI/Head of Service, or a nominated deputy.

The DI must ensure the competence of external suppliers, designers, fabricators and contractors is checked before they are asked to tender for work, and before being appointed to carry out work.

4.2 Manager of the Project / Site (PM)

The Project Manager is accountable for all TW on their project. They must ensure that all members of the site management team are made aware of the appointment of the TWC and of their responsibilities. Details of the TWC should be included in the “Key Appointments” section of the Construction Phase SHE Plan, and be displayed on the site SHE notice board.

The manager of the project / site:

- Is responsible for ensuring that these temporary works requirements are implemented.
- Is accountable for ensuring that Significant Items of TW are identified, recorded and their TW risk level assessed and managed in accordance with this standard.
- Must ensure the competence of those involved in the erection and dismantling of TW are assessed and determined as adequate either by them or their nominated delegate.
- Must ensure that the training of those involved in the erection and dismantling of TW are competent.
- Is responsible for ensuring that adequate time and resources are allocated to allow the TWC to discharge their responsibilities.
- Must ensure that all supply chain (sub-contractors) involved in the design and/or supply, erection, maintenance or dismantling of temporary works on site comply with this standard. Specifically, requirements for TW Design and TW Design Checks must be specified to be in accordance with this standard.
- Must ensure that (supply chain) subcontractors provide all appropriate documentation to allow the TWC to fulfil their duties.
- Is accountable for ensuring that Temporary Works Supervisors are appointed, as required (form [SHEMS-FOR-GR-010](#)). This should be carried out in conjunction with the Temporary Works Coordinator.

4.3 Temporary Works Co-ordinator (TWC)

The TWC must ensure that the requirements of this standard are implemented on site.

The TWC has the authority to stop the affected work, if the requirements of this standard are not being followed, and not allow work to continue until they have been complied with.

4.3.1 Selection and appointment of TWC

All projects must have a TWC, and a deputy TWC to cover for absences. These must be Unitas employees, or those employed by Unitas on fixed term or temporary contracts. The Operations Manager will make appointments using the Appointment Form ([SHEMS-FOR-GR-009](#)). The Operations Manager must take into account the guidance below on minimum experience levels, training and qualifications appropriate to the complexity of the project. The scope of the appointment must be clearly defined.

It is preferable that the TWC is not responsible for the day to day progress of the temporary works under consideration. Ideally, the TWC will be resident on site, but may be a visiting member of staff. On projects with more than one TWC, the areas of responsibility must be clearly defined in the appointment letters to avoid any gaps or overlaps.

The TWC should provide leadership for TW, having the ability to plan and manage people and resources. They should provide independent judgement with the ability to identify their own limits and the limits of their team's knowledge and skills. They should have knowledge of health, safety and welfare legislation, hazards and safe systems of work. They must have interpersonal skills with the ability to communicate well with others at all levels and to discuss ideas and plans competently and with confidence.

The proposed TWC must be satisfied that they are competent to perform their duties, and have the necessary time and resources to do so. If they are unable to satisfy themselves regarding this, then they must bring this to the attention of their line manager. They must refuse the appointment until they are satisfied they are competent and have the necessary time and resources to carry out the role, without fear of punitive action being taken against them. The Operations Manager must arrange either appropriate training for the proposed TWC, or ensure someone with the required competency is appointed to the role.

The key attributes of a competent TWC are:

- Relevant experience.
- Formal TWC training.
- Professional qualifications.

4.3.2 TWC Relevant Experience

The TWC should possess the experience and knowledge in the type of temporary works being carried out and also have the experience to apply technical and practical skills including reading, understanding and implementing the requirements of drawings and specifications.

The TWC should understand the different TW risk levels and control measures as defined in BS 5975.

It is highly unlikely that someone with less than 5 years relevant experience will be able to fulfil the role of TWC, unless there are only a small number of TW and they are all **Low** Risk.

4.3.3 TWC Training Requirements

The minimum training requirements for a TWC are the completion of the following courses:

If training was carried out before January 2015,	If training was carried out after January 2015,	
	Either	Or
All of the following 3 courses: - TW course 1 (Procedural); - TW course 2 (Practical Implementation) * ; & - Basic Scaffold Inspection Course.	All of the following 2 courses: - Unitas-delivered CITB Accredited Temporary Works Co-ordinator Training Course (TWCTC); & - Basic Scaffold Inspection Course.	All of the following 3 courses: - Externally delivered CITB accredited TWCTC; - Unitas Temporary Works e-learning module; & - Basic Scaffold Inspection Course.
NOTE 1: * or another equivalent course from a recognised external training provider, i.e. Thomas Telford Training, Symmons Madge, CHSG.		
NOTE 2: If there are no scaffolds for the TWC to manage, then the TWC does not need to have completed the Basic Scaffold Inspection Course.		

4.3.4 TWC Professional Qualifications

The TWC should have a relevant technical qualification (e.g. degree, HND or HNC). In the absence of this, the Operations Manager must be satisfied that the TWC is suitably experienced for the risk level of TW that they are co-ordinating.

It is desirable that for projects with a significant number of **High** risk level temporary works, the TWC should be a Chartered Civil or Structural Engineer and/or have TW design experience. Furthermore, the appointment of a TWC with no additional responsibility for site operations should be considered for projects of this type.

4.3.5 TWC Responsibilities during construction

The TWC must ensure:

- All significant items of temporary works are co-ordinated.
- TW Design Briefs are prepared with full consultation, are adequate and in accordance with the actual situation on site.
- Temporary works designs are carried out.
- TW Design Checks are carried out, including checking for concept, structural adequacy and compliance with the brief.
- A completed copy of the Design Check Certificate or similar is available.
- Records of drawings, calculations and other relevant documents relating to the final design are kept.
- TW designs are made available to interested parties (e.g. Principal Designer, other designers).
- There are suitable safe systems of work for the erection, use and dismantling of the TW covering any residual risks prepared for the TW, and that these are communicated to and understood by those involved in the TW.
- Those people responsible for the erection of TW receive full details of the design including any limitations or constraints associated with the TW, including any which will affect the stability of the TW during erection, use and dismantling.
- TW are inspected during construction, ensuring adequacy of materials.
- The requirements for Hold Points are identified on checklists if required.

- Hold Points are known by all those involved and that Hold Points are not passed until a Permit is signed by the TWC (including Permit to Load, Unload etc.).
- Ground conditions, general site conditions, loadings etc. are as stated on the design brief or the TW design assumptions (and remain so during use).
- Where testing is required for ground bearing, pull out tests, runway beams etc. that test records and certificates are produced and retained.
- Anyone carrying out fabrication of bespoke temporary works is competent to do so, e.g. by a quality audit of the fabricator, checking welder certification, procedures, etc.

When any changes to the TW are required or when the TW as-built do not comply with the TW design drawings and method statements, these must be referred to the TW designer for approval, prior to use of the TW. The TW designer must review the changes and confirm whether the changes are acceptable, or stipulate what further modifications must be made to ensure the safe completion of the TW. This must be confirmed in writing by the TW designer, or revised design drawings issued.

4.4 Temporary Works Designers (TWD)

The TW Designer (TWD) is responsible identifying, designing and producing suitable and sufficient information to enable the works to be carried out safely. They shall co-operate with other designers including the Principal Designer to ensure the TW enable the safe and efficient construction of the permanent works.

Temporary works should be designed in accordance with recognized engineering principles. As a minimum, the design assumptions must be clearly stated and the design shall be carried out in accordance with appropriate standards and codes of practice.

The design of the TW should take into account the variability of materials, workmanship, site conditions and construction tolerances. Furthermore, the TW should be designed with regard to ease and safety of erection and dismantling.

The appointment of external TWDs and checkers must be carried out in accordance with the Unitas Contractor, Materials and Product Standard (SHEMS-STD-GR-017).

TW Designers have the same duties under the CDM Regulations as any other appointed designer. They must provide adequate information about any significant risk associated with the design, e.g. in the form of a list of residual risks.

4.4.1 Selection of Temporary Works Designers

The requirement for the design and/or checking of any temporary works scheme is directly related to the risks associated with the TW. The TW designer must be sufficiently experienced and competent to carry out the design. The TWC may need to seek guidance from experienced staff when considering the appointment of designers for the various schemes on their Project.

The selection will be from one of the following sources:

- Site based engineers with appropriate training and experience.
- TW Design Engineers within Unitas.
- Specialist Supplier TW Design Engineers e.g. PERI, Groundforce, RMD.
- External Consultant Design Engineers.

All **High** risk level TW must be either designed, checked or reviewed by a Unitas nominated consultant.

Specialist Supplier TW Designers and External Consultant Design Engineers are to be selected on the basis of their experience or reputation, but it may be necessary to carry out an audit to ensure that they have suitably skilled and experienced staff for the particular schemes involved.

It is important to check that the proposed designer has the resources available to complete the work in accordance with the programme before they are appointed, and that they carry suitable Professional Indemnity Insurance for the work involved.

4.5 Temporary Works Supervisors (TWS)

The TWS is responsible for assisting the TWC with the inspection of the TW. The TWS may be directly employed, a subcontractor or an external consultant.

4.5.1 Selection and Appointment of TWS

A TWS must be appointed for all temporary works identified on the TW Control Register unless the TWC retains this duty. Where the TWC retains the duty for inspecting temporary works, the TW Control Register must state this.

The PM in conjunction with the TWC will appoint all TWSs using form Appointment of Temporary Works Supervisor ([SHEMS-FOR-GR-010](#)). The PM and TWC must ensure that the TWS is sufficiently competent and, have the experience and relevant up-to-date training appropriate to the complexity of the project. In the event of the TWS being a sub-contractor, provision of this duty needs to be included within the terms and conditions of the sub-contract.

The TWC must brief the TWS to carry out the role and provide checklists where necessary.

4.5.2 TWS Training Requirements

The mandatory minimum training requirements for a TWS is the completion of either of the following courses:

If training was carried out before January 2015,	If training was carried out after January 2015,
<ul style="list-style-type: none"> - TWS training from a recognised external training provider (i.e. Thomas Telford Training, Symmons Madge, CHSG); or - Unitas TWC training. 	<ul style="list-style-type: none"> - CITB accredited Temporary Works Supervisor Training Course (TWSTC); or - CITB accredited Temporary Works Co-ordinator Training Course (TWCTC).

4.5.3 TWS Responsibilities during construction

The TWS shall inspect the TW:

- During erection.
- Before it is brought into use.
- Periodically during its use.
- When there are additional requirements to maintain stability during its use.
- As identified on checklists.
- As directed by the TWC.

The TWS should record the results of inspections and ensure that any defects or omissions are corrected.

The TWS will inform the TWC:

- When TW which require a Permit to Load ([SHEMS-FOR-GR-063](#)) or have to be signed off by the TWC are ready for inspection.
- If there are any areas of inspection which they feel un-qualified to inspect.
- Where ground conditions, general site conditions, loadings etc. are outside the TW design assumptions.
- Where any changes from the agreed drawings, design or method statements are required, or have been made without the TWC's authorisation.
- Of any concerns they may have regarding the TW.

The TWS must ensure that safe systems of work are communicated and followed.

4.6 Works Supervisor (WS)

All staff including the Head of Service, Project Manager, Site Manager, Supervisors, Foremen and Engineers who are involved in managing work involving TW must ensure that all the requirements of this standard and method statements are applied effectively.

They must ensure:

- The condition of the equipment is inspected by the supervisors or tradesman as it is installed or dismantled, and that damaged equipment is not used.
- Damaged or defective equipment is examined by a competent, experienced person and replaced if necessary.
- Damaged or defective equipment is reported to the TWC.
- All the requirements of this standard and SSW are applied effectively.
- All Hold Points (Load, Unload, Strike or Dismantle) are adhered to and Permits obtained for their release.
- Requirements to maintain stability during erection, use and dismantling are understood by all supervisors and operatives involved in the process.
- Checklists where produced are followed.

5 Temporary Works Risk Assessment and Control Register

The TWC along with the Project Manager must identify the significant items of TW on the project, by involving the site and design team, and these items must be recorded on the Temporary Works Control Register ([SHEMS-FOR-GR-060](#)).

The register makes provision for identifying dates when controls need to be implemented. It is essential that external approvals, permanent works design etc. are carried out in a timely manner.

Each project should have only one TW Control Register which will include all significant items of TW, including subcontractor's TW. This is essential to ensure that there are no TW scope gaps.

The TWC must assess the risk associated with each item of TW, classifying significant items as either **Low**, **Medium** or **High** risk, and recording them on the TW Control Register. If there is any doubt, the TW should be assessed as being at the next higher risk level.

Examples of TW with and their likely associated risk levels are given in Table 1. This should be used as guidance and the starting point for assessing the risk level of the TW. Consideration of the context of the TW and consequences of failure are both critical to assessing the correct risk level for the TW – an item of TW in one context may be **Low**, and yet in another is may be **Medium** or **High**.

The likely control measures for each risk level are given in Table 2. In addition to this, any residual risks and their control measures must be brought to the attention of those directly involved in the TW via method statements, briefings etc.

Where temporary works have been designed and erected by others on site before Unitas occupation, these must be thoroughly and appropriately inspected prior to use. The TWC must ensure that the following information is available:

- Detailed drawings.
- Detailed calculations.
- Proof of design check.
- Proof of inspection and maintenance.

If any of the above items are not available, then they must be produced in accordance with this standard prior to use based on an as-built inspection. Engagement with an appropriate designer may be necessary.

Risk Level	LOW	MEDIUM	HIGH
The information in this table is for guidance and should be used by the TWC as the starting point for assessing the risk level of the TW. The TWC must consider the context and the consequences of failure of the TW when deciding on the risk level to be used.			
Description	TW used in Low risk situations. TW where there is little interface with the public. Standard equipment constructed in accordance with relevant Standards or Manufacturers requirements. Schemes where the consequences of failure are low.	TW used in Medium risk situations. TW that have a significant interface with the public. Schemes where the consequences of failure are significant.	TW used in High risk situations. One-off schemes of unusual temporary works that may produce a non-standard solution. Schemes that have a major impact on public safety or national infrastructure. Schemes where the consequences of failure are catastrophic.
Site Establishment	<ul style="list-style-type: none"> Site cabins to 2 storeys. Silo bases to Unitas established solution. Mesh panel fences erected in accordance with manufacturer's recommendations. 	<ul style="list-style-type: none"> Site cabin above 2 storeys. Proprietary solid panel system hoardings erected in accordance with manufacturers recommendations. Timber hoardings up to 3.0m high. 	<ul style="list-style-type: none"> Hoardings exceeding 3.0m high.
Access	<ul style="list-style-type: none"> Compliant scaffolds to TG20:13 which are less than 30m high. Loading Towers – compliant to TG20:13, system scaffolds to manufacturer's guidance & Unitas established solutions. System scaffolds staircases. 	<ul style="list-style-type: none"> Compliant scaffolds to TG20:13 which are greater than 30m high, or non-compliant scaffolds. Bespoke scaffolds to TG20:13. Edge Protection. Waste Chute support. 	<ul style="list-style-type: none"> Access and working scaffolds other than stated as low or medium risk and any that require non-standard support conditions. Temporary Roofs. Hanging Scaffolds.
Formwork Falsework	<ul style="list-style-type: none"> Formwork for columns using clamps up to 4m high. Double sided wall formwork using through ties up to 6m high. 	<ul style="list-style-type: none"> Single sided formwork up to 3.5m high. Falsework to slabs and beams using proprietary equipment. Back propping of floor slabs. Propping to Precast Concrete elements. 	<ul style="list-style-type: none"> Formwork, falsework and support work schemes using non-proprietary equipment. Very complex schemes using propriety equipment. Slip-forming & Climbing formwork.
Construction Plant	<ul style="list-style-type: none"> Mobile crane outrigger foundations, using company guidance, for cranes up to 100 tonnes. Piling mats. 	<ul style="list-style-type: none"> Mobile Crane outrigger foundations for cranes > 100 tonnes. Proprietary cantilevered loading platforms. Hoist & mast climber foundations and ties. 	<ul style="list-style-type: none"> Tower Crane bases.
Excavations	<ul style="list-style-type: none"> Excavation support up to 3m in uniform good ground conditions and where no dewatering is required. Excavations where ground movement is not important. Excavations using Trench Boxes in dry good ground conditions, where limiting ground movement is not important and surcharge loads do not exceed 10kN/m². 	<ul style="list-style-type: none"> Excavation support in uniform fair ground conditions with limited open sump dewatering required. Excavations where limiting ground movement is preferred but not critical. Excavations using Trench Boxes in dry fair ground conditions, where limiting ground movement is preferred but not critical and surcharge loads do not exceed 20kN/m². Dewatering schemes. 	<ul style="list-style-type: none"> Excavation support in ground other than as described in medium risk category. Excavations where ground movement is critical. Major excavations greater than 6m depth, or with plan dimensions exceeding 12m. Cofferdams. Tunnels and headings.
Structural Stability	<ul style="list-style-type: none"> Demolition schemes not requiring removal of complete structural elements, e.g. needling for small openings. 	<ul style="list-style-type: none"> Demolition schemes removing entire structural elements, but not including full façade retention. Temporary stability of permanent works during construction. 	<ul style="list-style-type: none"> Façade Retention. Temporary underpinning.
Permanent Works / Other	<ul style="list-style-type: none"> Manually loading out of materials onto floors. Water mains end cap restraint and pressure testing up to 16bar and 150mm Diameter. 	<ul style="list-style-type: none"> Plant loadings on permanent works e.g. from MEWPs. Water mains end cap restraint and pressure testing up to 25bar and 300mm Diameter. Stability of and lifting of reinforcing steel. Lifting points for Precast Concrete elements. 	<ul style="list-style-type: none"> Temporary Works that has the potential to affect major infrastructure assets, e.g. railways and highways. Temporary works and construction plant in the marine environment, e.g. crane barge stability.

Table 1: Temporary Works Risk Level

Group Standard

Temporary Works

Control Measures		LOW	MEDIUM	HIGH
Admin	List on TW Control Register	Yes	Yes	Yes
	Assess Risk Level	Yes	Yes	Yes
	Keep TW Documentation & Records	Yes	Yes	Yes
Design	Design Brief	Yes	Yes	Yes
	Drawings / Manufacturers Data	Yes	Yes	Yes
	List of Residual Risks	Yes	Yes	Yes
Design Check	Design Check	Yes	Yes	Yes
	Design Check categories to BS5975 ⁽¹⁾	0/1	1/2	2/3
	External Approvals	TWC discretion	TWC discretion	TWC discretion
Construction	TWS Appointed for each TW item	Yes	Yes	Yes
	Safe System of Work ⁽²⁾	Yes	Yes	Yes
	Inspection by TWC and/or TWS	Yes	Yes	Yes
	Inspection Checklist	TWC discretion	TWC discretion	Yes
	Permit to Load & Hold Points	TWC discretion	Yes	Yes
	TW Designer Inspection	No	TWC discretion	TWC or TW Designer discretion
Operate & Maintain	Inspection by TWC and/or TWS	Yes	Yes	Yes
	Inspection Register	TWC discretion	TWC discretion	Yes
Dismantle	Safe System of Work ⁽²⁾	Yes	Yes	Yes
	Inspection by TWC and/or TWS	Yes	Yes	Yes
	Inspection Checklist	TWC discretion	TWC discretion	Yes
	Permit to Unload / Strike & Hold Points	TWC discretion	Yes	Yes

TWC discretion may be appropriate beyond that identified above.
Any variance from this table MUST be fully documented.

Table Notes:

- See Table 3 below.
- A Safe System of Work includes provision of Risk Assessment, Method Statement & Toolbox Talk.

Table 2: Temporary Works Control Measures

BS 5975 Category	Scope	Comment	Checking Requirements	TW Risk Level
0	Standard solutions only	This category applies to the use of standard solutions. It does <u>not</u> apply to the original design for standard solutions, which will require both structural calculation and checking to category 1, 2 or 3, as appropriate.	Check is to be carried out by another member of the site team, or another member of the design team who carried out the design. The checker may refer to the design calculations and the assumptions on which the calculations are based.	Low
1	Simple designs	This category applies to designs undertaken using simple methods of analysis and be in accordance with the relevant standards, supplier's technical literature or other reference publications.	Check is to be carried out by another member of the design team who carried out the design. The checker may refer to the design calculations and the assumptions on which the calculations are based.	Low / Medium
2	More complex or involved designs	This category applies to designs where a considerable degree of interpretation of loading or soils' information is required to complete the design.	Check by another individual or team from the same organisation as the design team who carried out the design, who must not have been concerned with the development of the design or consulted by the designer or design team. The checker shall carry out the check without reference to the designer's calculations using only the design brief, design statement, drawings and specification (and associated reference information not produced by the designer). This will ordinarily be demonstrated through the production of a separate set of calculations. The checker should independently verify any assumptions on which the design calculations are based. The methods of analysis employed by the checker need not be the same as those employed by the designer. Once the checker's assessment is substantially complete, the checker may consult with the designer to close out any outstanding discrepancies.	Medium / High
3	Complex or innovative designs	This category applies to unusual designs or where there are significant departures from standards, or includes novel methods of analysis or where a considerable exercise of engineering judgement is involved.	As Category 2, except that the check should be by an individual or team from an organisation independent from the design team who carried out the design (i.e. by an organisation that is a separate legal entity).	High

Table 3: Design Checking Requirements

6 TW Design and Checking

6.1 TW Design Brief Preparation

The TWC must ensure that TW Design Briefs (form [SHEMS-FOR-GR-061](#)) are written in sufficient time to allow design, checking, formal approvals, and procurement of materials and erection of the TW.

Design and Design Checking may attract significant cost. The content of the Design Brief can influence this; spending time drafting a good brief will save money by making the design, process and solution more effective and efficient.

Relevant residual risks identified by the Permanent Works designer must be included in the TW Design Brief as appropriate. The TWC must work closely with the permanent works designer where the TW may affect the permanent works. It may be beneficial for the TWC to seek advice from the TW designer during the early stages of planning the methods of construction and the systems which will be used on the Project.

The TWC must ensure that the physical site constraints, proposed work sequences, plant use and potential interfaces with adjacent operations are considered in consultation with the site management team when preparing the design brief.

The TW Design Brief must detail what deliverables are required in accordance with the Risk classification of the TW. Deliverables could include:

- Drawings with explanatory notes including:
 - Restrictions and limitations in the erection, use, operation and dismantling of the scheme;
 - Loadings applied to the permanent works (where applicable);
 - Loading restrictions e.g. safe working load, rate of pour etc.;
 - Identification of critical components including recommendations for specific inspections and or tests required to prove their competence; and
 - A list of any Residual Risks.
- Construction sequence information for inclusion in the Safe System of Work;
- Inspection Checklists for erection, loading, use, inspection, dismantling;
- Design Check Certificate; and
- Design calculations.

6.2 Review of TW Design and Residual Risks

The TWC and other members of the site team shall carry out a review of the TW design and as a minimum ensure that:

- TW design deliverables are reviewed against the original design brief to ensure that they comply with all the site requirements. Any new requirements identified must be referred back to the TW designer for redesign and reissue of TW design deliverables.
- Any temporary loadings applied to the permanent works are referred back to the permanent works designer and seek written approval from the permanent works designer where appropriate.
- Where new requirements/risks are identified during the course of the works (e.g. through company safety alerts) the impact on the design and control measures must be reviewed.
- Residual risks and/or control measures identified by the TW Designer are to be included in the TW design output, and incorporated into the Construction Method Statements.

6.3 TW Design Check

The TWC must assign a design check category (0, 1, 2 or 3) for each significant item of TW on the project. The check category must be recorded on the Temporary Works Design Brief ([SHEMS-FOR-GR-061](#)). Guidance on the 4 design check categories available is given in Table 3. The check category assigned will depend upon the design complexity for the TW in question. The TWC should use his judgement to decide on the correct check category, and may consult the TW designer or TWA if there is any doubt.

The Design Checker must be appointed, and the check carried out, in accordance with checking category and checking requirements as defined in Table 3. The design should be checked for concept, adequacy, correctness and compliance with the requirements of the design brief.

7 Inspection and Condition of TW Equipment

The TWC and TWS, or other nominated person, must ensure that:

- Equipment is checked for compliance with design requirements - for example the grade of steel, timber, bolts, and connectors.
- Damaged or defective proprietary equipment is reported to the supplier, and the SHE department who will consider whether the defect merits the issue of a Safety Alert or Product Recall.
- Critical components, identified by the designer and or TWC, are subject to specific inspection.
- Where required, the TW designer inspects the condition of equipment incorporated into high risk schemes prior to them being loaded.

8 Erection/Installation, Use and Removal of Temporary Works

8.1 Safe System of Work (SSW)

A SSW includes the provision of a Risk Assessment, Method Statement & Toolbox Talk. A written Risk Assessment and Method Statement must be prepared and agreed for all temporary works prior to construction and also prior to removal. The method statement does not have to be a standalone method statement, but may be part of one covering a larger section of work.

The Method Statement describes the SSW and must cover:

- Method of erection, installation, use, dismantling and removal.
- Plant and equipment to be used.
- Means of access.
- Sequence and/or loading limitations imposed by the design.
- Sequence of unloading, striking, removal or dismantling limitations imposed by the design.

The TW designer may be involved where appropriate in providing information that forms part of the SSW.

Where there is any alteration to the loads imposed on the TW, the design, associated risk assessments and SSW must be reviewed. This includes the attachment of additional components such as chutes, hoists, access-ways etc. It also includes any change in plant selection or use which may impose loads on the temporary works, including surcharge from adjacent roadways etc.

The SSW must be communicated to all personnel involved and records of the briefings retained. Forms [SHEMS-FOR-GR-072](#) to [SHEMS-FOR-GR-074](#) relate to Method Statement comment, evaluation and variations respectively.

8.2 Hold Points

Hold points are designated points where work cannot proceed further until the identified items are inspected and permission to continue is given.

Hold points must be identified by the TWC in conjunction with the TW Designer and in accordance with Table 2 and must be included in the SSW, on TW drawings and on any checklists that are produced. These Hold Points may be prior to loading, striking, unloading or dismantling or at some intermediate stage.

8.3 Permits

The TWC is the only person who can issue a Permit to Load (form [SHEMS-FOR-GR-063](#)) or Permit to Strike/Unload (form [SHEMS-FOR-GR-064](#)). Before the temporary works are loaded or used the TWC, assisted by TWS inspection where appropriate, must ensure compliance with the checked design and issue a Permit to Load.

The TWC shall note on the permit any restrictions or requirements for use of the temporary works. The permit shall be issued to the manager of the project/site or their authorised representative, who shall acknowledge receipt and any restrictions or requirements.

Where a permit is issued for shuttering or falsework to support concrete, or is otherwise identified as being valid for a limited period (e.g. 24 hours for shuttering, for the duration of the shift for excavations, to suit tidal conditions etc.), or if the works have not been loaded within the defined period, the permit shall lapse and the TWC must be offered the works for re-inspection. A new permit shall be issued (or refused) by the TWC.

8.4 Use

The temporary works must be used strictly in accordance with the design and any restrictions or requirements defined on the Permit to Load. The restrictions must be communicated to those loading the works. Restrictions on use may include, use of plant, amount of surcharge, direction and methods of loading, sequence of demolition or dismantling, weather conditions, limitation of deflections and water levels.

8.5 Maintenance of Temporary Works

Temporary works shall be maintained in accordance with the designers' or manufacturers'/suppliers' instructions. The manager in charge of the site/project must ensure that where a maintenance regime is identified, a TWS is appointed to supervise the maintenance, and that records are kept in the Project SHE Register (form [SHEMS-FOR-GR-090](#)).

8.6 Inspections

Inspections must be carried out by a competent person in accordance with the inspection and/or statutory requirements.

Following any event which may have adversely affected the temporary works, for example strong winds, high water levels, very strong river flows or run-off, vehicle or plant impact, the works shall be inspected by a competent person. Work must not be allowed to continue until that person is satisfied that there has been no adverse effect. If remedial works are required, the temporary works shall be offered for re-inspection by the TWC, and a new permit to be issued (or refused).

Periodic inspections may be required to hoardings, tower crane bases, cofferdams and other relatively long-term temporary works.

8.7 Alterations

Alterations to temporary works, including additions and partial removals, shall only be carried out by competent people, and shall be subject to inspection by the TWC and issue of a Permit to Load (form [SHEMS-FOR-GR-063](#)), before being taken into use.

When any changes to the TW are required that deviate from the agreed TW design, then these must be referred to the TW designer for approval, prior to further use of the TW. The TW designer must review the changes and confirm whether the changes are acceptable, or stipulate what further modifications must be made to ensure the safe use of the TW. This must be confirmed in writing by the TW designer, or revised design drawings issued. These changes must be checked by the appropriate TW design checker.

Where the TW designer identifies that the change, addition or partial removal will not affect the integrity of the remaining temporary works, the TWC need only inspect and issue permits for the alterations, paying attention to the interfaces with the original works.

8.8 Unloading / Striking / Removal / Dismantling

Before the unloading, striking, removal or dismantling of temporary works, an inspection shall be carried out by the TWC, or TWS as appropriate, to make sure that the need for the temporary works has ceased. This may include:

- Completed installation of load transferring structures such as lintels.

- Removal of previously unstable structures which had been provided with support.
- Removal of loads for which support had been provided.
- Adequacy of strength of concrete.
- Completion of work within excavations.
- Sequence of striking falsework to suspended and cantilever slabs.
- Sequence of removing ties to independent tied scaffolds, loading bays and stair towers.

The temporary works shall then be offered for inspection to the TWC, assisted by the TWS, who shall issue (or refuse) a Permit to Strike/Unload (form [SHEMS-FOR-GR-064](#)). The TWC shall note on the permit any restrictions or requirements for removal of the temporary works. This may include for example, sequencing and the need for back-propping. The permit shall be provided to the manager of the project/site or their authorised representative, who shall acknowledge receipt and any restrictions or requirements.

Where only **Low** risk access scaffolding is involved, no pre-dismantle inspection by the TWC or permit is required.

9 Temporary Works Records and Audits

9.1 Temporary Works Records

The TWC must ensure that a file (electronic or paper copy) record of TW information is maintained. As a minimum, the file should include the TW Control Register as the index, and individual scheme sections filed by TW scheme reference number.

Each scheme section should contain the following, where appropriate:

- Design Brief;
- TW Drawings and Documents;
- Design Calculations;
- Design Check Certificates or similar;
- Inspection Checklists;
- Agreements by TW designer to any changes or alterations.
- Records releasing TW Hold Points (Permit to Load, Strike/Unload, etc.);
- Agreements by permanent works designers to TW loads;
- TW Designer's Residual Risks Schedules;
- Test Results & Inspection Results; and
- Other relevant Data and Information.

9.2 Retention of Temporary Works Records

All the TW documents and records must be kept together in one place. At the end of the project all TW documentation must be retained, stored with the project file as per requirements of Documentation Standard ([SHEMS-STD-GR-010](#)) and Record Retention Register ([SHEMS-REG-GR-010](#)).

9.3 Temporary Works Audits

The TWC is to audit the temporary works process, as defined in this standard and summarised in Figure 2, using the TW Audit Checklist ([SHEMS-FOR-GR-145](#)). This form can be used by other auditors as required.