MASTERING
TEMPORARY WORKS

Best-Practice Management, Design & Company Procedures

aligned with BS 5975-1:2024 and BS 5975-2:2024

VOLUME 3 — PROCEDURES, CASES & FUTURES

Chapter 7 Writing the Company TW Procedure (the flagship 10-step guide)
Chapter 9 Case Studies and Lessons Learned | Chapter 10 Future Trends
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A practical, safety-first guide for Temporary Works Coordinators, Supervisors, Designated Individuals, principal contractors, designers, SMEs and site teams

Temporary Works Consulting

Expert International Temporary Works Design, Advisory, Construction Management & Tutoring

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How to Use Volume 3

This is the third and final volume of Mastering Temporary Works. It is also the most directly actionable. Where Volume 1 set out the framework and Volume 2 covered design technique, Volume 3 puts the procedure on your desk, the case studies in your training pack, and the future-trend horizon scan in your strategy meeting.

Volume 3 is structured in five parts:

- Chapter 7 — the flagship ten-step guide to writing and implementing a company Temporary Works Procedure aligned with BS 5975:2024. Designed to be lifted directly into your management system.
- Chapter 9 — six anonymised case studies, each presented with chronology, root-cause analysis, and lessons. Suitable for use as toolbox-talk or competence-development material.
- Chapter 10 — future trends affecting temporary works practice over the next decade: BIM and digital twins, AI-assisted design and risk prediction, embodied carbon and sustainability, and modern methods of construction.
- Appendices B and C — additional editable templates and worked-example RAMS prompts.
- Glossary, References and Index — complete reference apparatus across all three volumes.

Where Chapter 7 references templates already shown in Volume 1 Appendix A, no duplication is offered here. Treat the three volumes as a single working set.

Copyright, Disclaimer and Use of this Volume

This volume is the original editorial work of Temporary Works Consulting (TWC). It synthesises the requirements of BS 5975-1:2024 and BS 5975-2:2024 with associated good practice but does not reproduce clause text, tables or figures from those British Standards. BS 5975-1:2024 and BS 5975-2:2024 are copyright © BSI Standards Limited 2024 and must be purchased separately from BSI.

The case studies in Chapter 9 are anonymised composites for educational purposes. They are not reconstructions of any specific named project, organisation or person. Any resemblance to a particular incident is coincidental; the patterns are drawn from publicly reported industry experience over the last twenty years.

Every reasonable effort has been made to ensure the accuracy of this volume. However, temporary works decisions are always site-specific. Nothing in this volume is a substitute for the engineering judgement of a competent, appointed Temporary Works Designer, Temporary Works Coordinator, or Designated Individual. No liability is accepted for loss, injury or damage arising from reliance on this volume in isolation. Worked examples and case studies use illustrative figures; they are not designs for any real project.

Contents

Chapter 7 — The Easiest Way for Any Company to Write and Implement Its Own Temporary Works Procedure

This is the most commonly requested chapter in any temporary works book, and it is deliberately placed at the heart of this volume. It is written for the owner of an SME contractor, the quality manager of a principal contractor, the health-and-safety lead of a specialist subcontractor, and the newly appointed Designated Individual (DI) who has been told — often without warning — that the company must now 'have a temporary works procedure in place'. It condenses into ten steps what most organisations take months to work out on their own, and provides ready-to-adapt text that can be dropped directly into a company manual with only minor editing.

The procedure described here is fully compatible with BS 5975-1:2024 and with the Temporary Works Forum publication TWf2019:03 'Guidance on the procedures necessary to control temporary works', together with the sample procedure circulated by the TWf that many organisations use as a starting point. It is deliberately scalable: a sole-trader groundworker with three site staff can use the short form described in Section 7.11; a Tier-1 main contractor with thousands of staff can use the full form; and everything in between can pick and mix.

Who this chapter is for

- Directors or partners who must nominate a Designated Individual under BS 5975-1:2024.
- Quality, SHEQ, or compliance managers writing or updating the company manual.
- Newly appointed DIs, TWCs, or TWSs who need a practical blueprint.
- Site-based staff who want to understand what 'good' looks like.
- Auditors preparing to review a contractor's temporary works arrangements.

7.1 Why every construction company needs a written procedure

Some companies still ask whether they really need a written temporary works procedure. The practical answer is yes, irrespective of size. The reasons are four-fold. First, BS 5975-1:2024 expects it, and compliance with BS 5975 is the de-facto benchmark used by the HSE, clients, insurers, and courts when things go wrong. Second, the Construction (Design and Management) Regulations 2015 require principal contractors to plan, manage, monitor, and coordinate construction work; in practice this cannot be evidenced without a written procedure for temporary works. Third, insurers now ask for the procedure during renewals; absence of one increases premiums or voids cover. Fourth, on any site above the smallest domestic project, the principal contractor will demand to see a subcontractor's procedure before mobilisation.

A written procedure also protects the company commercially. It sets out who is responsible for what, so that when a TWC is unavailable the project does not stop. It standardises the paperwork, so that inspections and handovers are consistent across sites. It forms the basis of training, so that new staff come up to speed quickly. And it provides a defensible audit trail if the HSE, the Building Safety Regulator, or a client auditor arrives unannounced.

7.1.1 The myth that small companies don't need one

The most common objection — 'we are too small to need a procedure' — is also the most dangerous. Smaller organisations actually have a stronger case for a procedure, not a weaker one, because they

rarely have in-house engineering resources, they cannot absorb a failure, and they are exposed to the same legal duties as Tier-1 contractors. The answer for small companies is not to avoid a procedure but to write a proportionate one. A five-page short-form procedure, tightly written, is fully compliant if it covers the BS 5975-1:2024 essentials. Section 7.11 shows exactly what this looks like.

7.2 The ten steps at a glance

The ten steps below form the skeleton of any compliant procedure. They can be expanded or contracted depending on the size of the organisation, but all ten should be present. An organisation that skips any step is carrying a gap — usually in audit, sometimes in safety, always in commercial resilience.

Step	Action	Typical output
1	Get board-level commitment	Signed policy statement
2	Appoint a Designated Individual	DI appointment letter
3	Map the organisation and interfaces	RACI matrix, org chart
4	Draft the core procedure document	Procedure text, numbered sections
5	Develop supporting forms and templates	Forms F1-F10 (register, brief, permits…)
6	Establish a competence framework	Competence matrix, training plan
7	Set up the design check arrangements	Panel of approved checkers
8	Integrate with the wider management system	Cross-references to ISO 9001 / 45001 / 14001
9	Roll out, train, and communicate	Briefings, e-learning, awareness campaign
10	Audit, review, and continuously improve	Audit reports, annual management review

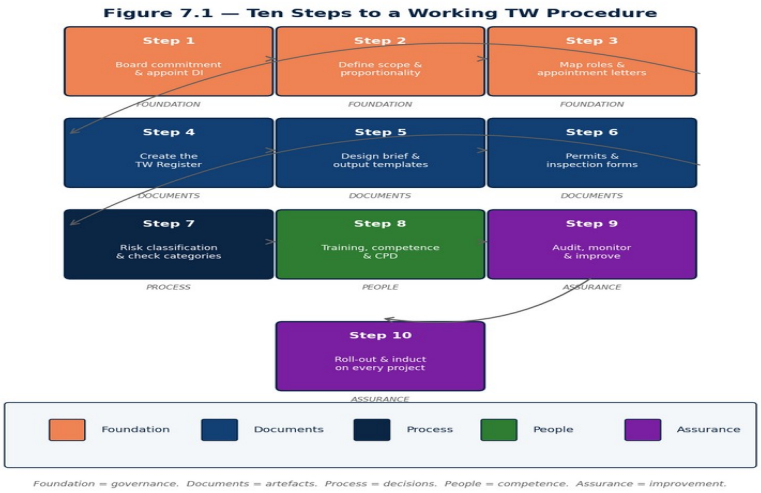

Figure 7.1 — The ten-step roadmap. A typical medium-sized contractor completes Steps 1–9 in eight to twelve weeks; Step 10 runs indefinitely.

7.3 Step 1 — Get board-level commitment

Every successful temporary works procedure in the UK construction industry has one thing in common: genuine, demonstrable support from the top of the organisation. BS 5975-1:2024 places the ultimate accountability on the directors or proprietors of the organisation, not on individual site staff. The Designated Individual acts on behalf of the board, not in place of it. If the board does not understand this, the procedure will fail the first time it is inconvenient.

Board-level commitment is demonstrated in three ways. First, a short signed policy statement, visibly dated and displayed, that commits the organisation to BS 5975 compliance. Second, a line-item in the annual budget for temporary works training, external design checks, and appointment of external DIs or TWCs when in-house resource is short. Third, inclusion of temporary works as a standing item on board meetings or management review agendas, not buried within 'health and safety'.

7.3.1 Sample policy statement (adapt and sign)

Sample text — Temporary Works Policy Statement

- [Company Name] recognises that the safe management of temporary works is essential to the lives of our workforce, the delivery of our projects, and the reputation of our business.
- We commit to operating in accordance with BS 5975-1:2024, BS 5975-2:2024 where relevant, the Construction (Design and Management) Regulations 2015, and all other applicable legislation and industry guidance.
- We have appointed [Name] as our Designated Individual with full authority, independence, and resources to manage our temporary works arrangements, and we expect every member of our organisation — from director to site operative — to support their decisions.
- Signed: [CEO / Managing Director] Date: [ ] Review: annually or following any temporary works incident or near-miss.

7.4 Step 2 — Appoint a Designated Individual

The Designated Individual is the single most important appointment under BS 5975-1:2024. The DI is the person on whom the procedure rests; without a competent and properly empowered DI, no amount of documentation will make the procedure work. The DI does not have to be a chartered engineer, does not have to sit on the board, and does not have to be a full-time employee — but they must be competent, independent of delivery pressure, and properly resourced.

Competence for the DI role is a combination of technical knowledge (enough to read a temporary works design and spot obvious errors), procedural knowledge (BS 5975-1:2024 inside and out), and organisational influence (the authority to stop work if needed). Many SMEs satisfy this through an external consultant appointed part-time; this is fully compliant, provided the appointment is formal and the external DI has sufficient site presence.

7.4.1 Sample Designated Individual appointment letter

Sample text — DI appointment letter

- Dear [Name],
- Following board approval on [date], I am pleased to formally appoint you as the Designated

Individual (DI) of [Company Name] under BS 5975-1:2024.

- In this role you will have overall responsibility for our temporary works management procedure, including: implementing and reviewing the procedure annually; appointing and monitoring Temporary Works Coordinators and Supervisors; maintaining the competence register; ensuring adequate design-check arrangements; and reporting annually to the board.
- You have full authority to suspend any temporary works activity that you consider unsafe or non-compliant, and to instruct any manager or operative accordingly. This authority is absolute and is not subject to commercial override.
- Your estimated time commitment is [ ] days per month, and you will report directly to the [CEO/MD] on a quarterly basis. A budget of £[ ] per annum is allocated for training, subscriptions, and external support.
- Please countersign below to confirm acceptance of the role, together with a declaration of your relevant competence.

7.5 Step 3 — Map the organisation and its interfaces

Before drafting procedure text, the DI should draw the organisation as it really works. This is rarely the same as the formal org chart. For a typical regional contractor, the temporary works-relevant roles usually include: the board; the DI; the SHEQ team; the pre-construction/estimating team (who may commit the company to temporary works approaches at tender); the contracts managers; the project managers; the site agents/managers; the TWCs and TWSs; the in-house engineering team if any; the preferred subcontractors who may bring temporary works (scaffold, piling, formwork, demolition); and external consultants.

The interfaces between these roles are where procedures most often fail. Estimating accepts a scope without flagging the temporary works implications. Pre-construction hands over to delivery without a temporary works register. Project managers appoint TWCs who are too junior, too busy, or not independent. Subcontractors turn up with their own temporary works designs that never reach the company register. Each of these is a known failure mode. A mature procedure addresses each one explicitly.

7.5.1 Sample RACI for a medium contractor

Activity	DI	TWC	TWS	PM	SHEQ
Maintain company procedure	A/R	C	I	I	C
Maintain register per project	A	R	C	C	I
Issue design brief	I	R	C	A	I
Commission/review design check	A	R	I	C	I
Inspect erected temporary works	I	R	R	C	I
Sign permit to load	I	R	C	A	I
Sign permit to strike	I	R	C	A	I
Annual audit	A/R	C	I	I	C

Legend: R = responsible, A = accountable, C = consulted, I = informed.

7.6 Step 4 — Draft the core procedure document

The core procedure document is the heart of the system. It is a single, controlled document — typically between 15 and 40 pages depending on the size of the organisation — that describes how temporary works are managed from tender to close-out. It should follow a logical structure that maps directly onto BS 5975-1:2024 and the thirteen-step control loop introduced in Chapter 4 of this book.

A recommended structure for the core document is given below. Every organisation should adapt the exact headings but should include equivalents of each.

7.6.1 Recommended table of contents for the company procedure

1. 1. Purpose, scope, and status of this procedure
2. 2. References and definitions
3. 3. Policy and commitment
4. 4. Roles, responsibilities, and authority (including DI, TWC, TWS, TWD, TWDC, PD, PC, PWD)
5. 5. Competence, appointment, and training
6. 6. Classification of temporary works (implementation risk / design check category)
7. 7. Temporary works register — when, how, and by whom
8. 8. Design brief — what must be in it, who signs it
9. 9. Design and design check — categories, independence, documentation
10. 10. Drawings, calculations, and design output
11. 11. Construction — erection, briefing, inspection, permit-to-load
12. 12. Use and in-service inspection
13. 13. Alterations and modifications
14. 14. Dismantling and permit-to-strike
15. 15. Close-out and learning
16. 16. Interfaces with subcontractors and suppliers
17. 17. Environmental considerations
18. 18. Emergency arrangements
19. 19. Audit, management review, and continuous improvement
20. 20. Document control, change control, version history
21. Appendices A-L: forms, templates, registers, checklists, sample letters

7.6.2 Sample opening clauses — drop-in text

Sample text — Section 1: Purpose and scope

- 1.1 This procedure establishes the arrangements by which [Company Name] manages all temporary works, in accordance with BS 5975-1:2024, the Construction (Design and Management) Regulations 2015, and other applicable legislation.
- 1.2 It applies to all projects where [Company Name] acts as principal contractor, main contractor, contractor, or designer, and to all subcontractors and suppliers engaged by [Company Name], on UK mainland projects and on offshore and overseas projects where the company policy so requires.

- 1.3 The procedure applies to all temporary works as defined in BS 5975-1:2024 Clause 3, whether designed in-house, by a subcontractor, or by a third party.
- 1.4 Where a client's procedure, a project-specific procedure, or local law imposes more onerous requirements, those requirements take precedence. Where a client or project procedure is less onerous, this company procedure applies.
- 1.5 Status: this procedure is mandatory for all employees, directors, and engaged consultants of [Company Name]. Non-compliance will be dealt with under the company disciplinary procedure.

Sample text — Section 3: Policy and commitment

- 3.1 [Company Name] is committed to the safe management of temporary works throughout the life of every project.
- 3.2 Our Designated Individual is empowered, resourced, and independent of commercial pressure.
- 3.3 We appoint Temporary Works Coordinators and Supervisors who are demonstrably competent, and we resource them accordingly.
- 3.4 We will not load or use any temporary work until a competent TWC has issued a written permit-to-load or equivalent handover.
- 3.5 We will not dismantle any temporary work until a competent TWC has issued a written permit-to-strike.
- 3.6 We investigate every temporary works incident or near-miss and share lessons across our projects and — where appropriate — with the wider industry via the TWf.

7.7 Step 5 — Develop the supporting forms and templates

A procedure without forms is like a kitchen without utensils. BS 5975-1:2024 implies — and TWf2019:03 makes explicit — that a set of controlled forms is necessary to make the procedure operate consistently across projects. The forms described below are those most commonly used, with suggested numbering. The exact numbering is not important, but every form should have a unique identifier, a version number, an issue date, and the name of the owner (usually the DI).

Form ref.	Title	Purpose	Signed by
F1	Temporary Works Register	Single project list of all TW, class, category, status	TWC
F2	Design Brief	Scope and requirements given to the designer	TWC / PM
F3	Design Check Certificate	Independent check outcome by category	TWDC
F4	Design Certificate	Designer's declaration	TWD
F5	Permit-to-Load	Release of TW for use	TWC
F6	Permit-to-Strike / Dismantle	Release of TW for dismantling	TWC
F7	In-service inspection	Periodic or post-event inspection	TWC / TWS

Form ref.	Title	Purpose	Signed by
	record		
F8	DI / TWC / TWS Appointment Letter	Formal appointment with authority	Director / DI
F9	Competence Declaration	Record of competence for the role	Appointee + DI
F10	Site briefing record	Record of briefing and attendance	TWC / TWS
F11	Modification request	Proposed change to a signed-off TW	Originator
F12	Audit checklist	Annual / project audit prompts	DI / SHEQ

The most common mistake here is to over-design the forms. A one-page design brief filled in fully is worth more than a twelve-page template with most fields blank. Each form should fit on one or two sides of A4, should use plain language, and should be available in both paper and electronic form.

7.8 Step 6 — Establish a competence framework

BS 5975-1:2024 strengthens the language on competence for all temporary works roles. The procedure must therefore describe — not merely reference — how competence is assessed, recorded, maintained, and periodically reviewed for every role. The Temporary Works Forum has published detailed competence matrices that are a reasonable starting point; they can be adapted to company size and type of work.

7.8.1 The four components of competence

Competence comprises four components: (a) knowledge, (b) skill, (c) experience, and (d) behaviour. Each must be addressed in the competence framework. Knowledge is demonstrated by qualifications, by training attendance (e.g. CITB Temporary Works Coordinator course), and by reading and understanding of BS 5975. Skill is demonstrated by supervised application of knowledge on real projects. Experience is demonstrated by a logged record of projects of varying type and complexity. Behaviour is demonstrated by the willingness to stop work, to escalate, to ask questions, and to maintain records even under time pressure — without it the other three are worthless.

7.8.2 A simple competence matrix

Role	Training	Experience (minimum)	Refresher	Authority
DI	Senior management awareness + BS 5975 training	10+ years construction, 3+ years managing TW	Every 3 years	Set procedure, appoint TWCs, stop any work
TWC	Accredited TWC course + BS 5975	5+ years engineering / site, 2+ years as TWS	Every 5 years	Issue permits, sign register, stop works

Role	Training	Experience (minimum)	Refresher	Authority
TWS	Accredited TWS course	3+ years site supervision	Every 5 years	Inspect, check, escalate to TWC
TWD	Chartered route or equivalent competence	Relevant design experience	CPD	Sign designs within competence
TWDC	Chartered route or equivalent	Demonstrable independence and seniority	CPD	Sign design checks

Figure 7.2 — Competence Pyramid for Temporary Works Roles

A certificate sits at the base. Real competence is the whole pyramid.

Figure 7.2 — Competence pyramid for temporary works roles.

7.9 Step 7 — Set up the design check arrangements

Design checking is one of the most common weak points in SME procedures. The temptation is to commission a design check only when a specific project demands it — by which point the programme is under pressure, the chosen checker may have no spare capacity, and the project ends up either self-checking or paying a premium. The solution is to set up the design-check arrangements in advance, as part of the procedure itself.

A typical arrangement includes: (a) an in-house Category 0 and Category 1 checking capability, usually a single senior engineer with appropriate time; (b) a framework agreement with one or two external TWDC firms for Category 2 and Category 3 checks, with pre-agreed rates and turn-around times; (c) a written rule that no design may be issued for construction until the check certificate is in hand; and (d) a simple tracker showing all live check requests, who is checking, and the expected completion date.

7.9.1 Design check categories — brief recap

Category	Trigger	Checker	Independence
0	Standard solution / restricted standard solution	Competent other within the team (if any check required)	As set by company
1	Simple designs, limited consequence	Different individual, same team permitted	Different individual
2	Complex or significant consequence	Different team, same organisation permitted	Different team

Category	Trigger	Checker	Independence
3	Complex with critical or high consequence	Different organisation	Different organisation

7.10 Step 8 — Integrate with the wider management system

A temporary works procedure is not an island. It must integrate with the organisation's overall management system — whether certified to ISO 9001, ISO 45001, ISO 14001, or simply expressed as a company manual. Integration has three aspects.

First, document control. The temporary works procedure is a controlled document within the company system, with a version number, an owner, a review date, and a change history. Amendments follow the same approval route as any other procedure — not a separate one.

Second, audit. Temporary works arrangements are audited as part of the regular internal audit programme, not only by the DI. Findings feed into the same corrective-action tracker as other audits, and are reported to the board in the same management-review meeting.

Third, cross-referencing. The temporary works procedure references — and is referenced by — the risk assessment procedure, the CDM procedure, the design management procedure, the subcontractor approval procedure, the procurement procedure, and the emergency-response procedure. Each cross-reference is explicit (by document number), not implied.

7.10.1 Sample integration clauses

Sample text — Integration with the management system

- This procedure (doc. no. TW-01) is part of the [Company Name] Integrated Management System and is controlled under QMS-02 Document Control.
- Risk assessments prepared under this procedure follow the method set out in SHE-03 Risk Assessment.
- Designer duties under this procedure are consistent with the requirements of DM-02 Design Management and CDM-01 Construction (Design and Management) compliance.
- Subcontractor engagement follows PRO-04 Subcontractor Approval; subcontractor TW must be entered in the project register under this procedure, irrespective of who performed the design.
- Emergency arrangements involving TW failure are covered in EMR-01 Emergency Response.

7.11 Step 9 — Roll out, train, and communicate

A procedure that is written but not communicated is a liability: a court, a client auditor, or the HSE will note its existence and then challenge any evidence of non-implementation. Roll-out must therefore be planned and recorded.

The roll-out has four elements: a director-level briefing to all senior managers; face-to-face toolbox talks for site teams; a short e-learning module for all office staff; and a refresher programme on a defined cycle (typically annual for awareness, and three-year for role-specific refreshers). Attendance at each is recorded in the competence system.

7.11.1 Typical training outline — TWC refresher course (1 day)

22. Overview of BS 5975-1:2024 and changes from 2019
23. The 13-step control loop in practice
24. Implementation risk and design check categories
25. Design briefs — what good looks like, common failings
26. Permit-to-load and permit-to-strike — worked exercises
27. Subcontractor TW — practical issues
28. Environmental considerations — new for 2024
29. Case studies — recent incidents and lessons
30. Written assessment and certificate

7.11.2 The short-form procedure for small companies

For sole traders and micro-businesses with fewer than ten employees, a five-page short-form procedure is both proportionate and compliant. It should contain: policy statement (half a page); roles — DI, TWC, TWS named with appointment letters (half a page); a single-page register template; a single-page design brief template; a combined permit-to-load / permit-to-strike on one page; and a one-page audit checklist. In all cases external support is commissioned on demand for Categories 2 and 3 and for any design work beyond Category 0 standard solutions. This short form can be fully implemented in a week.

7.12 Step 10 — Audit, review, and continuously improve

A temporary works procedure that is not audited will drift. Within two years, site practice will have moved on, new staff will have arrived, and subcontractors will have introduced their own variants. Audit must therefore be built in from the outset, not bolted on later.

At a minimum, the procedure requires three audit tiers. First, project-level inspections by the TWC or TWS during delivery — these are operational checks, not formal audits, but they catch issues early. Second, periodic project audits by the DI or an independent auditor on a sampling basis — typically one audit per project, mid-delivery. Third, an annual management review at which the DI reports to the board on audit outcomes, incidents, near-misses, competence gaps, and external changes (new editions of BS 5975, new HSE guidance, new insurance requirements).

7.12.1 A sample audit checklist (extract)

- Is the DI formally appointed, with a signed letter on file and annual confirmation of continued appointment?
- Is there a current temporary works register for the project, updated within the last month?
- Has each item in the register been classified for implementation risk and design check category?
- Are design briefs on file for each designed item, signed by the TWC?
- Is a valid design-check certificate on file for every designed item?
- Are permits-to-load on file for every TW that has been loaded?
- Is the competence of the TWC and TWS documented in the competence register?
- Has the site team been briefed on the TW, with attendance records?

- Are in-service inspection records on file for the period under review?
- Are subcontractor TW entered in the register with the same rigour as in-house TW?
- Does the site evidence environmental controls consistent with the design (dewatering, flooding, erosion)?
- Are any alterations to TW supported by written modification approval?
- Are permits-to-strike / dismantle on file for every TW dismantled?
- Has a close-out learning been recorded and circulated?

7.13 Common pitfalls and how to avoid them

Pitfall	Why it happens	Remedy
Procedure too long and unreadable	Copy-paste of BS 5975 and TWf documents without editing	Limit core document to 40 pages; push detail into forms and appendices.
DI is actually the project director	Small company, no independent senior manager available	Appoint an external part-time DI via a service agreement; fully compliant.
TWC is the site agent, drowning in other work	Role added to existing workload	Protect TWC time; quantify in the appointment letter.
Subcontractor TW not on the register	Register owned by main contractor only	Explicit clause that every TW on site, regardless of origin, is registered.
Design check forgotten until late	Programmed after the design is needed	Build design-check lead time into the procurement programme.
No close-out learning	Project closes under commercial pressure	Close-out learning is a gateway for project sign-off, not optional.
Forms never updated	Owner role not assigned	DI owns all forms; annual review date printed on each.
Environmental risks ignored	Procedure predates 2024 revision	Add dedicated section referencing BS 5975-1:2024 Clause 5 environmental clauses.

7.14 Typical timeline for a medium contractor

For a contractor of 50-200 employees with no existing procedure, a realistic implementation timeline is eight to twelve weeks from board commitment to operational roll-out. For a contractor of 10-50 employees the timeline is four to six weeks. For sole traders and micro-businesses using the short form, implementation can be completed in a week. These estimates assume a competent DI is available and that the organisation is not simultaneously pursuing major other changes (ISO certification, restructuring).

Week	Milestone	Deliverable
1	Board sign-off; DI appointed	Policy statement, DI letter
2-3	Organisation mapping; interfaces confirmed	RACI, org chart
3-5	Core procedure drafted	Draft TW-01

Week	Milestone	Deliverable
5-6	Forms developed	F1-F12
6-7	Competence framework	Matrix + training plan
6-7	Design check panel established	Framework agreements
8	Integration with management system	Updated cross-references
8-10	Roll-out and training	Briefings + e-learning
10	First project-level audit	Audit report
12	Operational	Procedure in routine use

7.15 Key takeaways and checklist

Key Takeaways — Chapter 7

- Every company, no matter how small, needs a written temporary works procedure aligned with BS 5975-1:2024.
- The ten steps set out in this chapter scale from sole trader to Tier-1 contractor.
- The Designated Individual is the most important appointment — choose on competence, independence, and authority, not convenience.
- Build design-check arrangements before they are needed, not when a project demands them.
- Integrate with the wider management system so that temporary works is not an orphan document.
- Audit and review or the procedure will drift; budget for it annually.

Checklist 7.1 — Immediate actions after reading this chapter

- Have we got a current signed temporary works policy, dated within the last 12 months?
- Is our DI formally appointed, with authority in writing?
- Is our core procedure under 40 pages and readable by a site manager?
- Are our Forms F1-F12 in a controlled library?
- Do we have pre-agreed design-check arrangements, including external TWDC firms?
- Is there a documented annual audit programme?
- Has the board reviewed TW in the last 12 months as a standing item?

Chapter 9 — Case Studies, Lessons Learned, and Best Practice

Case studies are the shortest route to genuine learning in temporary works. The principles set out in Chapters 1 through 8 are well established, but they are abstract until they are seen in the context of a real — or realistic — incident. The six case studies that follow are presented in anonymised form for educational use. They are not forensic accounts of any single event. Each draws on common patterns seen in publicly reported UK incidents over the last two decades and is intentionally generalised so that no individual project, company, or person can be identified.

Important note on the case studies

- These case studies are for education only. They are anonymised composites and illustrate common industry patterns.
- They are not reconstructions of specific named events.
- The lessons drawn are generic; real investigations require detailed forensic evidence.
- For verified incident data, consult HSE RIDDOR reports, HSE intervention notices, and TWf safety alerts.

9.1 Case Study 1 — Falsework collapse during early-morning pour

9.1.1 Context

A reinforced-concrete slab at a multi-storey commercial development was being poured from a concrete pump on a summer morning. The supporting falsework consisted of proprietary aluminium props with primary and secondary timber beams, arranged to a bay spacing set out on a simple drawing. Pouring began at 06:30 with a four-operative gang, a pump operator, and a banksman. Approximately forty minutes in, a section of the slab dropped without warning, taking with it several metres of formwork, one operative, and a substantial volume of wet concrete. The operative suffered serious injuries but survived.

9.1.2 What the investigation found

- The falsework bracing in one direction had been omitted by the erectors because it fouled a later follow-on trade's access route.
- The omission was not recorded on any handover inspection sheet. The permit-to-load had been signed the previous afternoon, after the bracing had been removed but with no fresh inspection.
- The design had assumed a 2.5% horizontal disturbing force resisted equally in both orthogonal directions. With one direction unbraced, the horizontal stability was lost progressively under the concrete placement sequence.
- The TWC on the project had just assumed the role that week following the departure of the previous TWC. Training records showed the course had been completed several years earlier; no refresher had taken place.
- The site had no written procedure for alterations to erected temporary works, although the principal contractor's company procedure did require one.

9.1.3 Root cause analysis

Level	Cause	Evidence
Immediate	Loss of lateral stability under horizontal disturbing force	Missing bracing in one orthogonal direction
Underlying	Uncontrolled alteration after permit-to-load	No modification request; no fresh inspection
Systemic	Weak handover of TWC role; procedure not followed on site	No refresher training; procedure known in head office, not on site
Root	Culture that prioritised follow-on access over temporary-works integrity	Decision to remove bracing taken without reference to TWC

9.1.4 Lessons for your site

31. Permit-to-load is a moment in time, not an enduring certificate; a fresh inspection is required after any alteration.
32. The procedure for 'site alterations to erected temporary works' must be written, known, and enforced.
33. TWC handover on site is a formal event, not an email — brief the incoming TWC on every live temporary works item.
34. Bracing must not be treated as optional when it interferes with other trades; the right answer is a redesign, not a removal.
35. Refresher training for TWC and TWS must be actively managed, not left to the individual.

9.2 Case Study 2 — Trench collapse in cohesive soil

9.2.1 Context

A service trench for new foul drainage was being excavated to approximately 2.6 m depth in brown silty clay adjacent to an existing building. The soil had appeared firm during the earlier topsoil strip and the contractor had used a single-wall trench box for the initial section. Approaching the final chamber, a short length of unsupported trench was left open for under an hour while the pipelayer finished the previous bedding. During this period, the near face collapsed, burying a labourer to the waist. He was freed within fifteen minutes and suffered crushing injuries to the lower body.

9.2.2 What the investigation found

- Recent rainfall had reduced the undrained strength of the clay near the surface.
- A spoil heap approximately 1.5 m high had been deposited within 0.5 m of the trench edge, acting as a surcharge.
- The trench box had been removed so that a new chamber could be set, with the intent of replacing it 'within a few minutes'.
- The method statement described a blanket approach ('shore all excavations') but did not specify the soil, the depth, the support system, or the sequence.
- The excavator operator's CPCS card was current; the site agent was also the TWC in name only, with no formal appointment letter and no TWC training.

9.2.3 Root cause analysis

Level	Cause	Evidence
Immediate	Unsupported excavation face in marginal cohesive soil	Trench box removed; face stood for under an hour but still failed
Underlying	Surcharge from spoil heap exceeded design assumption	1.5 m spoil at <0.5 m from edge
Systemic	Method statement too generic to drive behaviour	No specification of shoring details by reach or depth
Root	TWC role held by site agent without formal appointment or training	Nominal TWC; procedure did not flag the conflict of interest

9.2.4 Lessons for your site

36. 'Shore all excavations' in a method statement is not a design. Trench support must be specified: box/sheet/strut type, depth, spacing, sequence.
37. Spoil management is part of the design. A distance-from-edge rule and a maximum heap height should be stated.
38. Short exposures of unsupported faces in cohesive soils are not safe — they are conditional, and the conditions (rain, surcharge, vibration) frequently change unrecognised.
39. The TWC role must not be held by the same person who is driving the programme on site; the conflict of interest undermines the role.
40. Free-draining soils and cohesive soils behave very differently; do not rely on visual judgement at the surface.

9.3 Case Study 3 — Hoarding overturning in a winter storm

9.3.1 Context

A timber-clad plywood hoarding, approximately 2.4 m tall and 60 m long, was installed around a city-centre construction site at the start of the project. During a storm some months later, a 15 m length of the hoarding overturned onto an adjacent footpath in the early hours. No-one was injured; the footpath had been closed the previous day by the project team on a precautionary basis because of the weather forecast.

9.3.2 What the investigation found

- The hoarding had been designed for a wind basic value significantly lower than the site actually experienced during the storm; no seasonal factor had been applied.
- The design had assumed the hoarding was shielded by an adjacent building; site records showed the adjacent building had since been demolished as part of the project.
- The hoarding was propped only on the site side, with stays embedded in concrete kentledge blocks. The shielding assumption meant no windward stays were provided.
- A client-facing advert had been fixed to the street face, increasing the solidity ratio from roughly 0.9 to 1.0 over a significant area.

- No re-assessment of the hoarding design had been made at any point in the project despite the change in surrounding context.

9.3.3 Lessons

41. Hoarding design must state its context assumption explicitly, and must be re-assessed when the context changes (demolition of adjacent buildings, removal of shielding).
42. Advertising and signage is design information — it affects the wind load.
43. Overturning factor of safety of 1.5 (weight known) or 1.67 (weight uncertain) is a minimum, not a target.
44. The precautionary decision to close the footpath before the storm probably prevented injury or a fatality; good site practice converted a near-miss into a non-event.
45. Temporary works on the project register must include hoardings and fencing, which are often forgotten because they are installed on day one.

9.4 Case Study 4 — Basement wall failure due to surcharge

9.4.1 Context

A contiguous piled wall retained a four-storey basement excavation on a constrained inner-city site. The wall was propped at two levels by large-diameter tubular steel props. During a weekend pour of a lower-level slab, a heavy concrete pump, not anticipated in the temporary works plan, was positioned near the excavation edge with its outriggers extending close to the guard line. Following the pour, a line of small cracks appeared in the pavement behind the wall, triggering the monitoring plan. The excavation was stopped, the wall was inspected, and significant wall movement was recorded. The contractor took immediate remedial action and no collapse occurred.

9.4.2 Lessons

46. The temporary works design is only valid if the surcharge regime on site matches the one assumed.
47. Plant movements — especially heavy plant such as concrete pumps, cranes, piling rigs — must be planned and permitted against the TW design.
48. Monitoring with documented trigger levels and a pre-agreed response plan turns a potential failure into a near-miss.
49. The incident response plan must be practised; weekend events are the hardest to manage.
50. Close-out learning should circulate across projects in the same organisation, not remain on one site file.

9.5 Case Study 5 — Propping overload during refurbishment

9.5.1 Context

A Victorian commercial building was being refurbished to form a new retail space by opening up the ground-floor plan. A design was produced for the removal of several internal masonry walls and their replacement with a steel frame. Temporary propping was installed to support the upper floors during the removal phase. Part way through the removal, one of the Acrow props buckled and had to be urgently replaced. The floor above dropped approximately 20 mm before the remaining props took the load. No-one was injured but programme impact was substantial.

9.5.2 Findings

- The load taken by the prop was higher than designed because of unaccounted self-weight in a lime-concrete-filled spandrel above.
- The design brief had requested the temporary works designer to allow a factor on measured dimensions; the loading had been calculated from drawings not a measured survey.
- The prop was also eccentric to its bearing above — a short length of timber had been inserted to bridge an awkward stone detail, reducing effective bearing area.
- The TWS inspection record did not capture the eccentricity.

9.5.3 Lessons

51. In refurbishment, measured surveys beat drawing-based calculations; old drawings are unreliable, and voids are often filled with concrete, rubble, or water.
52. Eccentricity reduces prop capacity dramatically; the TWS must be trained to look for it.
53. Props must have proper packers and spreaders — not offcuts of timber.
54. A 'low-energy' near-miss (a 20 mm drop caught by redundancy) still requires full investigation; next time the redundancy may not be there.

9.6 Case Study 6 — Dewatering-induced settlement of an adjacent building

9.6.1 Context

A piled foundation for a new residential tower required localised dewatering to allow pile-cap excavation in a granular aquifer. The dewatering was designed by a specialist subcontractor. During operation, progressive settlement was recorded in the building next door, with one corner settling approximately 40 mm over three weeks. This triggered disputes, a client claim, and significant remediation costs.

9.6.2 Findings

- The ground investigation had not extended laterally far enough to cover the adjacent building; the soil stratigraphy under the neighbour was assumed to be the same and was not.
- The neighbour's foundations were on soft compressible material above the aquifer, which consolidated under the lowered pore pressure.
- The dewatering design did not include re-charge wells or any pore pressure control.
- Monitoring of the neighbour's settlement was on a weekly schedule; by the time the trigger was exceeded, the settlement had occurred.

9.6.3 Lessons

55. Dewatering is a designed activity and its zone of influence is an engineering calculation, not a guess.
56. Ground investigation must be planned to cover adjacent structures — this is an explicit CDM design risk consideration.
57. Monitoring frequency should match the expected rate of change, not calendar habit.
58. Consider recharge wells, cut-off walls, and sequencing to limit drawdown outside the site.

59. Engage the adjoining owner early. Disputes about temporary works damage are expensive and slow.

9.7 Cross-cutting themes and patterns

Taken together, these six cases illustrate patterns that recur in UK construction temporary works failures. The patterns are consistent across decades of incident data and are largely independent of the type of temporary works involved.

9.7.1 The 'known but ignored' pattern

In every case above, the underlying technical cause was known to the industry and documented in standard guidance. The failure was not of knowledge but of application. The TWC did not inspect after an alteration. The dewatering designer did not extend the investigation. The propping designer used drawing dimensions. Each of these is a procedural failing, not a technical one. Strong procedures — well-communicated, trained, audited — close these gaps.

9.7.2 The role-confusion pattern

Several of the cases show a role held by someone who could not truly exercise it. The site agent who is also the TWC. The TWC with no refresher training. The specialist subcontractor allowed to design without client-side challenge. Role confusion is a systems failure — it is fixed by the procedure (Chapter 7), the competence framework, and the independence of the DI.

9.7.3 The alteration pattern

Temporary works that pass all their checks at installation are altered on site and fail. This is the most avoidable pattern. A written modification request, with a fresh design check at the correct category and a re-issued permit-to-load, is the established control. Every company procedure must require it, and every site must enforce it.

9.7.4 The context-change pattern

Temporary works designed in one context — a shielded hoarding, a firm-ground working platform, a cold-weather sequence — are used in another. The surrounding site changes. The ground dries out or floods. The plant mix changes. The controls are the context statement in the design, a periodic re-validation, and a culture that flags change.

9.7.5 The weekend / out-of-hours pattern

Several cases above occurred at weekends or outside normal working hours. Covers are down. Inspections are thinner. Decisions are made by the on-call team. The controls are clear out-of-hours procedures, a well-briefed response plan, and — on larger sites — a senior on-call engineer with authority and knowledge of the temporary works.

[Figure — Figure 9.1 — Cross-cutting failure patterns]

A wheel diagram showing the five cross-cutting patterns (Known but ignored, Role confusion, Alteration, Context change, Out-of-hours) as sectors of a wheel, each with an arrow pointing to a central box labelled 'Procedure + Competence + Independence'. A small legend lists the six case studies with which pattern each illustrates.

Figure 9.1 — Failure patterns from the six case studies. The same patterns recur across temporary works type and across decades.

9.8 Best practice signposts

Against the failure patterns, the industry has developed a mature set of best-practice behaviours. These are collected below as a positive counterpart to the case studies.

Pattern	Best-practice response
Known but ignored	Procedural discipline: register, brief, design, check, permit, inspection, close-out. Written, audited.
Role confusion	Independent DI. Formal, time-quantified appointment letters. Annual competence review.
Alteration	Written modification request. Fresh design check at correct category. Re-issued permit.
Context change	Context statement in every design. Periodic re-validation. Watching brief for site change.
Out-of-hours	Out-of-hours procedure. On-call senior engineer. Pre-briefed response plan. Weekend inspections.

Key Takeaways — Chapter 9

- Temporary works failures are almost never caused by novel technical problems — they are caused by well-known issues poorly managed.
- Procedural discipline is the biggest single driver of safety, not technical excellence on its own.
- Every failure pattern has an industry-standard best-practice response; the task is to implement it on your site.
- Share lessons within your organisation and — where possible — with the industry, via the TWf and peer channels.
- Treat every near-miss as a full incident for investigation purposes; the next instance may not have redundancy.

Checklist 9.1 — Learning from others

- Have the TWC and TWS seen relevant case studies within the last year?
- Does your organisation circulate TWf safety alerts and HSE intervention notices?
- Is there a register of lessons learned across projects that is actually read?
- Are near-misses investigated to the same depth as incidents?
- Is the DI aware of the patterns identified in this chapter and their controls?

Chapter 10 — Future Trends and Continuous Improvement

Temporary works is often described as a conservative part of construction — for good reason. When the downside is a catastrophic collapse, innovation is tempered by caution. But the discipline is not static. The 2024 revision of BS 5975 itself reflects a decade of evolution: clearer roles, a stronger environmental focus, and the limit-state option for falsework design alongside the long-established permissible-stress tradition. Looking ahead, four forces are already shaping the next decade of temporary works practice: digital information management, artificial intelligence, sustainability and embodied carbon, and industrialised methods of construction.

This final chapter surveys these trends with two objectives. First, to help decision-makers — DIs, board members, senior project staff — understand what to watch, what to invest in, and what to be sceptical about. Second, to encourage a culture of continuous improvement in which each project is a little better than the last, and lessons are systematically captured and applied. None of the trends discussed here remove the need for the fundamentals in Chapters 1 through 9; they augment them.

10.1 Building Information Modelling (BIM) and temporary works

BIM has been on the UK construction agenda since the 2011 Construction Strategy, yet its penetration into temporary works remains uneven. Main-contractor tender teams routinely receive Level 2 BIM models of the permanent works, but the temporary works layer is often missing or partial. This is slowly changing, and the direction of travel is clear.

10.1.1 What BIM brings to temporary works

- Clash detection — between temporary works and permanent works, between temporary works and site logistics (cranes, deliveries, scaffolds), and between temporary works and services.
- Quantification — automated take-off of timber, scaffold tube, props, falsework, ground improvement, with traceability back to the design.
- Sequencing — 4D visualisation of erection, loading, use, and dismantling phases against the programme.
- Information transfer — a consistent set of attributes on each element (load class, category, inspection interval, tie-in loads) accessible to site, designer, and operations.
- Handover — a structured record of what was installed and how, with photographs and as-built dimensions linked to the model.

10.1.2 Practical implementation

The practical implementation is less exotic than the marketing suggests. Most contractors begin by modelling their major temporary works items — falsework, cofferdams, crane bases, temporary supports — in the same authoring tool as the permanent works, often Revit or Tekla. The temporary works designer contributes a federated model that is merged with the permanent model for coordination. Proprietary scaffold and formwork manufacturers provide parametric libraries that snap into the contractor's model. The more advanced contractors extend this to the site-logistics layer: a 4D model that shows the crane, the hoardings, the dewatering wells, and the storage compound alongside the permanent works as the project progresses.

10.1.3 The TWC's role in a BIM workflow

BIM does not replace the TWC — it changes the information environment within which the TWC works. The TWC still issues the design brief, still maintains the register, still signs permits, still inspects. The differences are that the register may sit in a common data environment rather than a spreadsheet, that the brief may be accompanied by model extracts, and that the inspection record may be associated with model elements rather than plan coordinates. The underlying BS 5975-1:2024 process is unchanged. A TWC who cannot navigate a model today will struggle on many projects in five years.

10.2 Digital twins, IoT, and real-time monitoring

Beyond BIM, the construction industry is experimenting with digital twins: live models of the asset that are updated by sensor data during construction and operation. For temporary works, the most relevant strand is real-time monitoring integrated with the BIM or CAD model.

Common applications include: load cells on props (particularly in propped excavation systems), inclinometers in retaining walls, settlement pins monitored by automated total stations, piezometers in dewatering schemes, wind-speed sensors on cranes and tall falsework, and CCTV with machine-vision analytics on access platforms. In each case the sensor output is tied to pre-agreed trigger levels and a response plan. The digital twin aspect is the visualisation layer that makes the raw data intelligible to the TWC and the project team.

10.2.1 Opportunities

- Early warning — trigger-based alerts before visible distress.
- Reduced reliance on scheduled inspections in hazardous or inaccessible areas.
- Objective evidence for insurance, dispute resolution, and HSE engagement.
- Data for learning across projects — failures rarely happen without precursors.

10.2.2 Cautions

- Monitoring does not replace design. An under-designed wall with instrumentation is still an under-designed wall.
- Triggers must be set at levels that allow response — not at failure.
- Alert fatigue is a real risk; false-positive rates must be managed.
- Battery life, connectivity, and cyber-security are often the limiting factors, not the sensors themselves.
- The response plan must be practised; an alert at 02:00 on a Saturday is only useful if the duty engineer knows what to do and has authority to act.

[Figure — Figure 10.1 — Instrumented temporary works scheme]

Schematic of an excavation support scheme with instrumentation: inclinometer tube in the retaining wall, load cells on two levels of props, piezometer behind the wall, settlement pins on the adjacent building with an automated total station monitoring them, and a wind-speed sensor at the top of the hoarding. Data paths converge at a site gateway and flow to a cloud-based dashboard with trigger-level indicators and an alerting system.

Figure 10.1 — A modern, fully instrumented temporary works scheme. The technology is mature; the discipline of setting and responding to triggers is the differentiator.

10.3 AI-assisted design and analysis

Artificial intelligence tools are starting to influence temporary works design in three ways. First, generative design: tools that propose layouts for scaffolds, falsework, or support schemes given a set of constraints. Second, analysis and checking: AI assistants that can flag inconsistencies in design briefs, check calculations against code provisions, or highlight deviation from company standards. Third, information retrieval: assistants that can summarise long specifications, locate relevant clauses in BS 5975 or the Eurocodes, and accelerate the reading of existing documents.

Each of these has genuine potential. Each also carries risks that BS 5975-1:2024 and the wider profession have not yet fully addressed.

10.3.1 What AI tools can do well today

- Summarise and navigate long documents — especially for TWCs and TWSs who need to locate specific clauses quickly.
- Suggest standard solutions for common problems where good training data exists.
- Check design outputs against standard-form requirements — e.g., has the wind load been included, is a factor of safety stated.
- Draft text — for method statements, risk assessments, design briefs — that a competent human then edits.

10.3.2 What AI tools cannot yet do

- Exercise engineering judgement on the cases that matter most — the unusual, the high-consequence, the poorly characterised.
- Replace an independent Category 2 or Category 3 design check.
- Take legal responsibility for the output — responsibility remains with the named TWD, TWDC, and TWC.
- Reliably identify the edge cases where their own confidence is misplaced.

10.3.3 Governance points for companies adopting AI

60. Record use — which tool was used, for what part of the work, by whom?
61. Verify output — every AI-produced calculation is checked by a competent human; the AI is a calculator, not a designer.
62. Update the procedure — the company TW procedure should reference the AI governance framework and the limits of permitted use.
63. Train users — particularly on where the tool's judgement can be trusted and where it cannot.
64. Preserve confidentiality — client and project information fed into external AI services may breach confidentiality or data-protection obligations.

The honest position, as of 2026, is that AI-assisted workflows accelerate routine work but do not shift the legal or technical responsibility away from the named duty holders. That may change, but it has not yet.

10.4 Sustainability and embodied carbon in temporary works

Temporary works have a surprisingly large carbon footprint. Steel sheet piles, reinforced-concrete crane bases, timber formwork, mass kentledge, engineered granular fill — all are either made from virgin material or are transported significant distances. A conservative estimate places the embodied carbon of temporary works between five and twelve per cent of the total embodied carbon of a typical building project, with infrastructure projects often higher. As client aspirations move towards net-zero, and as PAS 2080 and allied standards become embedded in procurement, temporary works designers and contractors have both an opportunity and an obligation to reduce this footprint.

10.4.1 Hierarchy of carbon reduction

Priority	Action	Example
1	Avoid	Revise construction sequence to eliminate a temporary wall
2	Reduce	Optimise section sizes; shorten prop spans; reduce concrete in crane bases
3	Re-use	Re-use formwork, props, sheet piles; track cycles; return to supply chain
4	Rent or hire	Proprietary falsework, crane bases, dewatering rather than buy-and-scrap
5	Switch material	Lower-carbon concrete mixes; steel with recycled content; timber from certified sources
6	Offset (last resort)	Certified offsets after all other reductions

10.4.2 Practical steps

65. Early engagement — a temporary works designer appointed at RIBA Stage 2 or 3 can eliminate temporary works that a Stage 5 appointee cannot.
66. Whole-life thinking — a larger, more durable temporary work used across multiple phases may have lower carbon than a series of single-use items.
67. Standardisation and re-use — a company-level stock of sheet piles, props, and formwork with tracked cycles is now a commercial differentiator as well as a sustainability one.
68. Material passports — a simple record of what was used, tied to the design, enables intelligent re-use at close-out.
69. Environmental disposal — waste hierarchy; avoid land-fill; segregate on site.

10.4.3 Carbon reporting and PAS 2080

PAS 2080 'Carbon management in buildings and infrastructure' is the UK's leading framework for whole-life carbon management in construction. Major clients — Highways England / National Highways, Network Rail, the Environment Agency — are increasingly requiring PAS 2080 alignment in their supply chain. Temporary works estimates of embodied carbon contribute to the project total, and are expected to be measured, reported, and reduced over successive projects. The framework distinguishes capital carbon (materials and construction) from operational carbon (in-use energy) and user carbon; for temporary works, capital carbon dominates and is the principal reduction target.

[Figure — Figure 10.2 — Temporary works carbon hotspots]

Horizontal bar chart showing typical embodied carbon by temporary works type for a medium commercial project: (1) Crane bases and heavy foundations — tallest bar; (2) Sheet piles and cofferdams; (3) Falsework and formwork; (4) Working platforms; (5) Scaffolding; (6) Hoardings and access. A dashed line across the chart marks the approximate share of total project embodied carbon.

Figure 10.2 — Indicative carbon hotspots. Exact values vary by project; the principle — a small number of items dominate — is consistent.

10.5 Industrialised and off-site methods

Off-site manufacturing has transformed parts of the permanent-works supply chain — volumetric bathroom pods, pre-cast frames, cross-laminated timber — but temporary works has been slower to industrialise. Proprietary falsework and formwork systems are the obvious exception, but in many other categories temporary works remains a cut-and-prepare-on-site activity. The direction of travel here is clear.

10.5.1 Emerging patterns

- Pre-fabricated cofferdam units with integral walings and props, dropped in and bolted together.
- Pre-cast crane-base blocks designed for multiple lifts, returned and reused.
- Modular hoardings with engineered stays and integrated lighting / gates.
- Pre-assembled edge protection that clips to the slab and can be repositioned as work progresses.
- Pre-fabricated propping arrangements with documented load capacities.

10.5.2 Implications

Industrialised temporary works simplifies management because standard solutions (Category 0) become more widely available. The designer's work concentrates on the interfaces — how a modular system meets the ground, the permanent structure, and the wider site. The TWC's work concentrates on verification — that the system as erected matches the manufacturer's instructions and limits. The gains are in programme, in safety (repeatable, engineered, tested), and in sustainability (re-use). The risks are in complacency — treating proprietary systems as infallible — and in mis-application, where the system is used outside its published limits without a fresh design.

10.6 People, skills, and the temporary works profession

None of the technical trends matters without people. The temporary works profession in the UK — DIs, TWCs, TWSs, TWDs, TWDCs — is under growing pressure. Demand from clients and principal contractors has risen; supply has not kept pace. The average age of TWCs is older than the industry average, and recruitment pipelines are limited. Several interrelated initiatives are attempting to address this.

10.6.1 Accreditation and competence

- The CITB accredited TWC and TWS courses remain the baseline for initial competence, with refresher courses on defined cycles.

- The Temporary Works Forum (TWf) continues to publish guidance, maintain the TW Register of Designers scheme, and engage with clients and regulators.
- Institution-level recognition — ICE, IStructE — of temporary works as a discipline in its own right is emerging through specialist panels and conference series.
- Apprenticeship routes are lengthening to include temporary works awareness.

10.6.2 Diversity

Temporary works, like much of structural engineering, has been slower than average to diversify. The business case is established: diverse teams make better engineering decisions on complex problems. The route to a more diverse profession starts in apprenticeship and graduate recruitment and continues through active sponsorship within firms. Companies that take it seriously report better recruitment and retention.

10.7 Continuous improvement in your organisation

Trends matter at the industry level. At the organisation level, the day-to-day driver of improvement is a simple cycle applied consistently: plan, do, check, act. For temporary works, this cycle maps onto four tangible activities.

Activity	Frequency	Owner	Output
Project-level close-out learning	Every project	TWC with DI oversight	Close-out report; lessons log
Cross-project review	Quarterly	DI	Thematic review of recent projects
Annual management review	Annually	DI → Board	Board paper; procedure update; investment plan
Industry engagement	Ongoing	DI + nominated staff	TWf participation; CPD events; contribution to standards

10.7.1 How to make continuous improvement real

70. Treat close-out as a gateway, not an optional activity.
71. Ensure lessons have owners and due dates — not merely a list.
72. Publish the annual management review internally; make it visible to staff.
73. Budget, every year, for external training, consultancy input, and procedure updates.
74. Participate in the industry — send staff to TWf events, contribute case studies (anonymised), respond to BSI consultations.

10.8 A 10-year outlook

No-one can predict with certainty what temporary works practice will look like in the mid-2030s, but the direction of several trends is now clear enough to plan against. The following outlook is offered as a working hypothesis rather than a forecast.

By about	Likely state of practice
~2028	Temporary works routinely federated into BIM models; digital permits-to-load; basic instrumentation on all excavations above 3 m.
~2030	Embodied carbon of temporary works reported on major projects; competence frameworks digitalised; TWC tools AI-augmented.
~2032	Widespread use of pre-fabricated modular systems for mid-size works; rental-based supply chains dominant for major items.
~2035	A revised BS 5975 reflecting digital and carbon integration; professional registration schemes for TWC fully mainstream.

These are trends, not forecasts. The fundamentals of BS 5975-1:2024 — competent roles, clear procedures, rigorous design and checking, honest documentation, and a culture of learning — will remain the bedrock of safe temporary works in all of these futures. Technology and sustainability raise the ceiling of what is possible; they do not alter the floor.

Key Takeaways — Chapter 10

- Digital tools (BIM, digital twins, AI) augment but do not replace the BS 5975-1:2024 fundamentals.
- Sustainability and carbon are becoming procurement requirements; plan and invest now, not later.
- Industrialised and modular temporary works raise standard-solution volumes and change the designer's and TWC's focus.
- The profession needs active recruitment, training, and diversity investment to meet demand.
- Continuous improvement is a disciplined cycle — apply it to your procedure, your people, and your projects.

Checklist 10.1 — Future-readiness

- Are we planning to integrate temporary works into our BIM workflow on the next major project?
- Are we measuring embodied carbon in our temporary works estimates?
- Do we have a position on AI-assisted design in our company procedure?
- Is our competence framework keeping pace with retirements and new joiners?
- Do we run a formal close-out + annual review + industry-engagement cycle?

Appendix B — Additional Templates

These templates complement those in Volume 1 Appendix A. Editable Word and Excel versions are available to TWC clients on request. Tailor each to your organisation, project, and the specific scheme.

B.1 Inspection and Test Plan (ITP) — skeleton

Every temporary works item should have an ITP derived from its design output. The ITP states what will be inspected, when, by whom, the acceptance criterion, and the form of record. Below is the minimum-content skeleton.

Item ref	Activity / hold point	Inspection / test	Acceptance criterion	By whom	Frequency	Record	Sign-off
1	Sole plate / pad placement	Visual + survey	Position to drawing ±50 mm; bearing surface verified	TWS / site engineer	Pre-erect	Inspection sheet	TWS
2	Erection of standards / props	Visual + plumb check	Verticality ≤1:200; spacing to drawing	TWS	Per shift	Sheet	TWS
3	Bracing in place	Visual	All bracing per drawing; couplers torqued	TWS	Pre-load	Sheet	TWS
4	Ties to structure	Pull test (where applicable)	≥ design resistance	Competent tester	Pre-load and per regime	Test certificate	TWC
5	Pre-load review (Permit to Load)	Documentation review + walk	All hold points cleared; design and check certs in place	PC's TWC	Once per item	Permit	PC's TWC
6	Loading event(s)	Witness + monitoring	Loads within design limits	TWS	Each event	Log	TWS
7	In-use monitoring	Visual + instrument (where used)	No movement above thresholds; no damage	TWS / appointed monitor	Per regime	Log / instrument data	TWC
8	Pre-strike review (Permit to	Documentation + visual	Permanent works at required	PC's TWC	Pre-strike	Permit	PC's TWC

Item ref	Activity / hold point	Inspection / test	Acceptance criterion	By whom	Frequency	Record	Sign-off
	Unload)		strength; method statement briefed				
9	Dismantling	Witness + visual	Per method statement and sequence	TWS	During dismantle	Log	TWS
10	Handback / strike completion	Documentation	Records archived; lessons noted	TWC	Once per item	Closeout note	TWC

B.2 Pre-use site verification checklist

To be completed by the TWS or appointed competent person before any temporary works is loaded. Tailor to the specific scheme.

#	Verification item	Status (Y/N/NA)	Comment
1	Design and check certificates received and current		
2	As-erected condition matches construction-issue drawings		
3	Materials match specification (no substitutions)		
4	All bracing and ties in place		
5	Connections complete and torqued / pinned as required		
6	Sole plates / spreader pads on competent ground		
7	No standing water, ice or contamination affecting performance		
8	Working platforms clear, edge protection in place		
9	Access provided for inspection and dismantling		
10	Method statement and RAMS briefed to operatives		
11	Hold points on permanent works satisfied (e.g. cube strength)		
12	Wind / weather forecast checked against any cut-off limits		
13	Adjacent operations and third-party constraints accounted for		
14	Emergency procedures known and accessible		
15	Photographic record taken before loading		

B.3 RAMS structure for a typical TW activity

A method statement and risk assessment for a temporary works activity should as a minimum cover the following sections. The order may vary; the content should not be omitted.

75. Activity description and scope — what is being done, where, by whom, when, and the temporary works involved.
76. References — design drawings, calculations, design check certificate, design brief, applicable standards, supplier instructions.
77. Resources — personnel (named where relevant), plant, equipment, materials, PPE.
78. Sequence of work — step by step, with hold points, witness points and decision points clearly marked.
79. Hazards and controls — including: working at height; manual handling; lifting; falling objects; collapse; entrapment; electrical; environmental discharges; HV proximity; noise, dust, fumes; confined space; lone working.
80. Specific TW controls — pre-use verification (per B.2); in-use monitoring; permit dependencies; stop-work triggers.
81. Communication and supervision — TWC, TWS, competent persons present; means of communication; escalation route.
82. Emergency arrangements — first aid, evacuation, fire, environmental spill response, refuge points, contact numbers.
83. Environmental considerations — discharges, noise restrictions, working hours, biodiversity, waste.
84. Sign-offs — author (qualified person), reviewer, approver (DI or PC's TWC for high-risk activities), briefed-to record with names and signatures.

> **Reminder**
>
> A RAMS that is generic, undated, unsigned, or not briefed to the people doing the work is not a RAMS. Investigators routinely find these on file after incidents and they offer no defence.

B.4 Toolbox-talk template — temporary works

Use this template to brief site teams on a specific temporary works item. Keep talks short (10 to 20 minutes) and visual.

Field	Entry
Project	
TW reference and description	
Date and time	
Briefer (TWC or TWS)	
Attendees (names, signatures)	
Key safety messages (3–5 bullets)	Use of permits; not climbing on falsework; reporting damage; respecting cut-off conditions; stop-work authority of TWS

Field	Entry
Specific limits and warnings	Loads, wind cut-off, no over-loading, no unauthorised modification
Inspection regime and who to call	
Q&A noted	

B.5 Annual TW procedure audit checklist

To be completed at least annually by an internal auditor independent of the TW function, or by an external auditor. Findings inform the procedure update cycle.

#	Audit item	Evidence sought	Finding	Action
1	DI appointment current; competence current	Letter; CPD record		
2	Procedure references BS 5975-1:2024 explicitly	Issued procedure		
3	Environmental risk section present	Procedure section / brief template		
4	TWC/TWS appointments in writing on every active project	Letters		
5	TW Register live on every active project	Sample registers		
6	Design briefs evidenced for all bespoke TW	Sample briefs		
7	Design and design check certificates on file before construction	Sample certificates		
8	Permits to Load issued and signed	Sample permits		
9	ITPs prepared and signed	Sample ITPs		
10	Change control records demonstrate formal sign-off	Sample changes		
11	Training records current for DI, TWCs, TWSs	Records		
12	Lessons learned register live and reviewed	Register		
13	No unresolved Improvement or Prohibition Notices outstanding	Notices file		
14	Insurance broker has seen current procedure at last renewal	Broker correspondence		
15	Procedure due-date for next review identified	Procedure version control		

Glossary of Terms

Definitions are given in the sense used throughout this three-volume work. Where a term is defined in BS 5975-1:2024 or BS 5975-2:2024, the standard's definition prevails for formal use; the explanations here are provided to aid understanding only.

Term / abbreviation	Meaning
Active soil pressure	The lateral pressure exerted by retained soil that is just on the point of yielding outwards from the support.
AIP	Approval In Principle — a third-party (often network operator) acceptance step for design intent.
BIM	Building Information Modelling — coordinated digital information about a project across its life.
BR 470	BRE Report 470 — Working Platforms for Tracked Plant — design code for piling/crane platforms.
BS 5975-1:2024	Code of practice for the management procedures to control temporary works (UK).
BS 5975-2:2024	Code of practice for the design and implementation of falsework (UK).
CAR insurance	Contractors' All Risks insurance — covers damage to the works and materials during construction.
CDM 2015	Construction (Design and Management) Regulations 2015.
CFR	Consequence of Failure Risk — a category in BS 5975/PAS 8811 risk classification: CFR0 to CFR3.
CITB	Construction Industry Training Board.
CPD	Continuing Professional Development.
DCR	Design Complexity Risk — how intricate or novel the design is. DCR0 to DCR4 (DCR4 is TWf extension).
DI	Designated Individual — the senior person in an organisation who owns its TW procedure.
Effective length (Le)	The length of an idealised pin-ended column with the same buckling capacity as the actual member.
ER	Execution Risk — the propensity for failure during erection, use or removal. ER0 to ER3.
Eurocodes	Suite of European structural design standards (BS EN 1990 onwards).
Falsework	Temporary structure used to support a permanent structure during construction (BS 5975 definition).
Formwork	Temporary or permanent moulds into which concrete is poured.
GI	Ground Investigation — geotechnical site survey.
Hold point	A point in a sequence at which work cannot proceed until a specific verification has occurred.

Term / abbreviation	Meaning
HSE	Health and Safety Executive (UK).
HV	High Voltage — typically >1 kV AC; site-specific definitions vary.
Implementation risk	The class (Very Low / Low / Medium / High) combining ER and CFR; drives site control.
ITP	Inspection and Test Plan — document setting out planned verifications during construction.
LOLER 1998	Lifting Operations and Lifting Equipment Regulations 1998.
MMC	Modern Methods of Construction — includes off-site, modular and DfMA (design for manufacture and assembly).
PAS 8811:2017	Publicly Available Specification: Temporary works — Major infrastructure client procedures (UK).
PC	Principal Contractor (CDM 2015 role).
PCI	Pre-Construction Information — the information the client must provide under CDM 2015.
PD	Principal Designer (CDM 2015 role).
Peer review	Independent review of the overall concept by a senior, independent expert; broader than a design check.
Permissible stress design	Design method comparing working stresses to a fraction of yield (the permissible stress).
Permit to Load (PTL)	Formal authorisation that a TW item is verified ready to receive load.
Permit to Unload (PTU)	Formal authorisation that a TW item may be relieved of its load and dismantled.
Principal contractor's TWC (PC's TWC)	The TWC appointed by the principal contractor, with overall site coordination authority.
PUWER 1998	Provision and Use of Work Equipment Regulations 1998.
RAMS	Risk Assessment and Method Statement.
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013.
SCOSS / CROSS	Standing Committee on Structural Safety / Confidential Reporting on Structural Safety (now Structural-Safety).
TG20	Technical Guidance 20 — NASC compliant scaffold guide for tube and fitting scaffolds.
TWC	Temporary Works Coordinator (BS 5975).
TWD	Temporary Works Designer.
TWDC	Temporary Works Design Checker.
TWf	Temporary Works Forum (UK industry body).
TWS	Temporary Works Supervisor — site-level deputy to the TWC.

Term / abbreviation	Meaning
WAHR 2005	Work at Height Regulations 2005.

References and Bibliography

Primary standards (must be purchased separately from the publisher)

- BSI (2024). BS 5975-1:2024 — Temporary works — Part 1: Management procedures for the control of temporary works — Code of practice. London: BSI Standards Limited.
- BSI (2024). BS 5975-2:2024 — Temporary works — Part 2: Falsework: Design and implementation — Code of practice. London: BSI Standards Limited.
- BSI (2017). PAS 8811:2017 — Temporary works — Major infrastructure client procedures — Code of practice. London: BSI Standards Limited.
- BSI / CEN. BS EN 12812 — Falsework — Performance requirements and general design.
- BSI / CEN. BS EN 1990 to BS EN 1999 — Structural Eurocodes.
- BSI / CEN. BS EN 1997 — Eurocode 7: Geotechnical design.
- BSI. BS 7121 — Code of practice for safe use of cranes (multiple parts).
- NASC (current). TG20 — Scaffolding good practice guide.

UK legislation (consult The Stationery Office for current text)

- Health and Safety at Work etc. Act 1974.
- Construction (Design and Management) Regulations 2015 (CDM 2015).
- Work at Height Regulations 2005.
- Provision and Use of Work Equipment Regulations 1998 (PUWER).
- Lifting Operations and Lifting Equipment Regulations 1998 (LOLER).
- Electricity at Work Regulations 1989.
- Workplace (Health, Safety and Welfare) Regulations 1992.
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR).
- Building Safety Act 2022.
- Environmental Permitting (England and Wales) Regulations 2016 and devolved equivalents.

Industry guidance (TWf and others)

- Temporary Works Forum (2019). TWf2019:03 — Guidance on the procedures necessary for the control of temporary works.
- Temporary Works Forum. Clients' guide to temporary works.
- Temporary Works Forum. Various design guidance notes (TWf 2009 onwards).
- Temporary Works Forum (2018). Working platforms for tracked plant — design and verification (companion to BR 470).
- HSE (various). Health and Safety in Construction (HSG150) and other guidance.
- BRE (2004). BR 470 — Working Platforms for Tracked Plant. BRE Press.
- CIRIA (various). C760 Guidance on embedded retaining wall design; C580 Embedded retaining walls; other CIRIA publications.
- Concrete Society. Various technical reports on falsework and formwork.

- ICE / Bragg, S. L. (1975). Final Report of the Advisory Committee on Falsework. London: HMSO.

International standards (selected — verify currency for each project)

- AS 3610 — Formwork for concrete (Australia).
- AS/NZS 1576 — Scaffolding (Australia/New Zealand).
- ACI 347 — Guide to Formwork for Concrete (USA).
- ASCE 37 — Design Loads on Structures During Construction (USA).
- ENA Engineering Recommendations and Technical Specifications (UK electricity sector).
- IEC 61936-1 — Power installations exceeding 1 kV AC.
- BS EN 50110 — Operation of electrical installations.
- Network Rail Standards (NR/L2/CIV series and Engineering Manual: Temporary Works).
- Highways England / National Highways Standards (DMRB).

Suggested further reading

- Beale, R. and Godley, M. — Pallet rack and falsework collapse research (academic literature).
- Pallett, P. F. and Peakall, R. — Concrete Pressure on Formwork (CIRIA C766).
- Eddy, J. — Various papers on embedded retaining wall design and instrumentation.
- Structural-Safety (formerly SCOSS / CROSS). Periodic safety alerts and annual newsletters.
- HSE published prosecutions and Improvement Notices — searchable on the HSE website.

On accuracy and currency

Standards and legislation are revised periodically. The references above are correct in title at the time of publication but readers should always check for current editions and amendments before using them on a project. BS 5975 itself was last revised in December 2024 and supersedes BS 5975:2019.

Index — Across All Three Volumes

References use the form V·n where V is the volume (1, 2, or 3) and n is the chapter number. Where a topic is treated in detail in one volume and cross-referenced from another, the principal entry is shown first.

End of Volume 3 — End of the Three-Volume Set

This concludes Volume 3 — Procedures, Cases and Futures, and with it the three-volume set Mastering Temporary Works.

If you have read all three volumes you now hold a working manual that covers, in practical detail, the management framework (Volume 1), the design discipline (Volume 2), and the company-procedure, learning-from-incidents and forward-looking content (Volume 3) needed to run a competent temporary works function under BS 5975:2024.

The single most important next step is action. A bookshelf full of standards and a manual full of procedures changes nothing on a site. What changes outcomes is:

- Naming a competent Designated Individual.
- Issuing real appointment letters with real stop-work authority.
- Maintaining a live Temporary Works Register on every project.
- Insisting on design briefs, design checks, permits and inspections.
- Auditing what you said you would do, and updating the procedure when reality teaches you something.

Temporary Works Consulting is available to support implementation of all of the above — from drafting your company procedure, to delivering CAT I/II/III independent design checks, to training and tutoring your TWCs and TWSs, to providing on-call advisory through high-risk operations including high-voltage substations, OHL works, façade retention, deep excavation and complex falsework. Contact details are held separately.

— End of the Three-Volume Set —

Read it. Use it. Make safe temporary works management effortless best practice.