| UNIVERSITY OF BATH HEALTH AND SAFETY STANDARD | | | | | |
|---|---|---|---|---|---|
| **Tower Scaffolds** | | | | | |
| Version Number | Version 6 | Date of Approval | September 2024 | Review Date | September 2027 |
| Author and Lead | Paul Maggs; SHEW | | | | |
| Aims | To provide a common standard for the management and use of tower scaffolds by employees. This standard identifies what training would make a person competent to assemble, dismantle or inspect a tower scaffold. This standard identifies what is required by way of inspection to ensure a tower scaffold is and remains safe to use. | | | | |
| Scope | This standard applies to tower scaffolds (AKA prefabricated mobile access towers) used by staff or students. The standard applies whether the tower scaffold is owned by the University, is rented from a third party, or comes from some other source.<br>This standard does not apply to low level access platforms (less than 2.5 metres) even though they may share some features with tower scaffolds.<br>This standard should be read and applied in conjunction with the Working at Height Standard which provides a framework for deciding which height access equipment should be used. | | | | |
| Relevant Legislation | • The Health & Safety at Work Act 1974<br>• The Work at Height Regulations 2005<br>• The Management of Health & Safety at Work Regulation 1999 (specifically the general requirement to assess health & safety risks)<br>• The Provision & Use or Work Equipment Regulations 1998 (which sets out the general requirements for work equipment) | | | | |
| Definitions | For the purpose of this standard tower scaffolds (AKA prefabricated mobile access towers) are scaffold structures which:<br>• are capable of being used free-standing;<br>• have one or more working platforms;<br>• are assembled using prefabricated components;<br>• have the dimensions fixed by the design;<br>• have normally four legs with at least four castors; and<br>• are stable, by supports on the ground. | | | | |
| | For the purpose of this standard a competent person is one who has sufficient knowledge, training and experience to carry out the tasks delegated to him. Persons who have passed the appropriate Prefabricated Access Suppliers' & Manufacturers' Association Ltd (PASMA) approved training courses are widely recognised as competent to assemble, dismantle or inspect a tower scaffold. Additional training may be required for some operations (e.g. assembling a tower scaffold on stairs).<br>Persons may also be deemed competent by the Construction Industry Scaffolders Record Scheme (CISRS) with regard to tower scaffolds, but this level of competence is the reserve of professional and advanced scaffolders. | | | | |
| Responsibility for implementation | Director of Campus Infrastructure<br>Head of Department | | | | |
| Training availability: | Persons who have passed the appropriate Prefabricated Access Suppliers' & Manufacturers' Association Ltd (PASMA) approved training courses are widely recognised as competent to assemble, alter, dismantle or inspect a tower scaffold. | | | | |

| | **Standard to meet** | **Accountability** | **Reference documents and more information** |
|---|---|---|---|
| 1 | Ensure that all operations using tower scaffolds are the subject of a suitable and sufficient risk assessment. The assessment may be generic (where the operations performed do not differ significantly) or specific to a particular operation. | Director of Campus Infrastructure<br>Head of Department | See the generic tower scaffold risk assessment below. |

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| 2 | Ensure that all operations using tower scaffolds are properly planned and organised. An action plan to implement the risk assessment should be completed as part of this process.<br>The action plan may be generic (where the operations performed do not differ significantly and the persons involved do not change) or specific to a particular operation. The plan may be in the form of an assessment action plan (as appended to the University risk assessment pro forma), a written safe system of work or something equivalent. | Director of Campus Infrastructure<br>Head of Department | See the generic tower scaffold risk assessment below. |
| 3 | Ensure that all tower scaffolds provided for use are suitable and sufficient for the tasks to be performed. | Head of Department | Tower scaffold manufactured to the relevant British Standard[1]. |
| 4 | Ensure that tower scaffolds are assembled or dismantled only by persons competent to undertake this work. | Director of Campus Infrastructure<br>Head of Department | Persons who have passed the appropriate Prefabricated Access Suppliers' & Manufacturers' Association Ltd (PASMA) training courses are widely recognised as competent to assemble or dismantle a tower scaffold. |
| 5 | Ensure that manufacturer's instructions for assembling and dismantling the tower scaffold are readily available and that the instructions are followed. | Director of Campus Infrastructure<br>Head of Department | Instructions must be readily available to persons charged with assembling, dismantling, inspecting, moving or otherwise using the tower scaffold. |
| 6 | Ensure that the tower scaffold is subject to an inspection regime carried out by a competent person. Inspections must be carried out as follows.<br>• After assembly and before first use;<br>• After modification and before use;<br>• At an interval of no more than seven days and<br>• After any circumstances liable to compromise the installation. | Director of Campus Infrastructure<br>Head of Department | Persons who have passed the appropriate Prefabricated Access Suppliers' & Manufacturers' Association Ltd (PASMA) training courses are widely recognised as competent to inspect a tower scaffold. |
| 7 | Ensure that a record of the inspection is made and retained until superseded by the next inspection.<br>Ensure that the inspection record is displayed on the completed tower scaffold. | Director of Campus Infrastructure<br>Head of Department | Commercial systems are available for recording and displaying the inspection results e.g. Scafftag[2] |
| 8 | Ensure that if a tower scaffold fails an inspection, it is not used until faults are rectified and the inspection repeated. | Director of Campus Infrastructure<br>Head of Department | |

[1] BS EN 1004:2004 Mobile access and working towers made of prefabricated elements — Materials, dimensions, design loads, safety and performance requirements. This standard applies to mobile access and working towers made of prefabricated elements with a height from 2.5 m to 12.0 m (indoors) and from 2.5 m to 8.0 m (outdoors). Low level working platforms (less than 2.5 m) made from prefabricated elements are not covered by this standard even though they may share some features with towers.

[2] Scafftag provides a commercial system for recording and displaying scaffold inspection results. The system includes record cards and a card holder that can easily be fastened to or hung on a scaffold. Other systems are available, but Scafftag is by far and away the market leader.

| | | | |
|---|---|---|---|
| 9 | Ensure that tower scaffolds are only used by persons who are competent to do so or by persons under the close supervision of a competent person. | Head of Department | |
| 10 | Ensure that tower scaffolds are only moved by persons who are competent to do so. | Head of Department | |
| 11 | Ensure that when not in use tower scaffolds are suitably stored so as to prevent damage. | Head of Department | |

**Appendix: Example Manufacturers Information and Instruction Manual Cover**

Copies of user instructions supplied by PASMA Manufacturing Members can be viewed on the PASMA website.

UNIVERSITY OF BATH

INSTANT UPRIGHT

# Span 500, 500B, 500X

# Advance Guard Rail System
# Instruction Manual

**DESIGNATION**
SPAN 500 AGR Double Width
EN 1004 – 3 – 8/12 – XXXD
SPAN 500 AGR Single Width
EN 1004 – 3 – 8/8 – XXXD

CEN designation of this instruction manual
EN 1298 – IM – en
Rev-00

# Generic Tower Scaffold Risk Assessment

| Hazard Severity (a) | Likelihood of Occurrence (b) |
|---|---|
| **1 – Trivial** (e.g. discomfort, slight bruising, self-help recovery) | **1 – Remote** (almost never) |
| **2 – Minor** (e.g. small cut, abrasion, basic first aid need) | **2 – Unlikely** (occurs rarely) |
| **3 – Moderate** (e.g. strain, sprain, incapacitation > 3 days) | **3 – Possible** (could occur, but uncommon) |
| **4 – Serious** (e.g. fracture, hospitalisation >24 hrs, incapacitation >4 weeks) | **4 – Likely** (recurrent but not frequent) |
| **5 – Fatal** (single or multiple) | **5 – Very likely** (occurs frequently) |

## Risk Assessment Matrix

| (B)↓ (A)→ | Trivial | Minor | Moderate | Serious | Fatal |
|---|---|---|---|---|---|
| **Remote** | 1 | 2 | 3 | 4 | 5 |
| **Unlikely** | 2 | 4 | 6 | 8 | 10 |
| **Possible** | 3 | 6 | 9 | 12 | 15 |
| **Likely** | 4 | 8 | 12 | 16 | 20 |
| **Very likely** | 5 | 10 | 15 | 20 | 25 |

## Risk Rating Bands (A x B)

| LOW RISK (1 – 8) | MEDIUM RISK (9 - 12) | HIGH RISK (15 - 25) |
|---|---|---|
| Continue, but review periodically to ensure controls remain effective | Continue, but implement additional reasonably practicable controls where possible and monitor regularly | **STOP THE ACTIVITY** Identify new controls. Activity must not proceed until risks are reduced to a low or medium level |

The assessor shall assign values for the hazard severity **(a)** and likelihood of occurrence **(b)** (taking into account the frequency and duration of exposure) on a scale of 1 to 5, then multiply them together to give the rating band:

| **Risk Assessment Title:**<br>**Generic Tower Scaffold Risk Assessment** | **Date Produced:**<br>XX/YY/ZZ | **Review Date:**<br>**1 year from date produced** |
|---|---|---|
| **Overview/Description of Activity:**<br>Construction, alteration and dismantling of Tower Scaffolds. | **Duration/Frequency of Activity**: | |
| **Location of Activity:** The assessment does not consider specific work activities that persons using the tower might undertake (such as electrical work etc.) or work near local hazards, such as overhead cranes, power lines or similar; these would need to be covered separately in a specific assessment. | **Generic or Specific Assessment:**<br>Generic | |

| # | Hazard(s) identified | Who might be affected and how | Existing controls & measures | Severity (a) | Likelihood (b) | Risk Rating (a x b) | Additional control/action required |
|---|---|---|---|---|---|---|---|
| 1 | Tower not suitable and sufficient for use at work. | Person assembling / dismantling.<br><br>Person using tower.<br><br>Person near tower.<br><br>Tower unstable, topples over.<br><br>Fall during access / egress.<br><br>Fall from platform during use. | • Compliant with BS EN 1004:2004 - critical safety features:<br>  ○ Instructions specifying method for assembly / dismantling.<br>  ○ Sufficient platforms of correct design with trapdoor access.<br>  ○ Sufficient guard rails of the correct dimensions around all platforms.<br>  ○ System for platform access / egress.<br>  ○ Stabilisers / outriggers of correct size and number for stability.<br>• Tower components available and in good order – towers rely on all components being in place to prevent falls and ensure stability. | 4 | 2 | 8 | • Damaged or non-compliant scaffold or parts of scaffold to be taken out of use and disposed of securely. |

| # | Hazard(s) identified | Who might be affected and how | Existing controls & measures | Severity (a) | Likelihood (b) | Risk Rating (a x b) | Additional control/action required |
|---|---|---|---|---|---|---|---|
| 2 | Tower assembled on uneven or sloping ground. | Person assembling / dismantling tower.<br>Person near tower.<br>Tower unstable, topples over. | • Tower compliant with BS EN 1004:2004 - instruction / information specifying method for assembly / dismantling. Either:<br>  ○ 3T System – Through the Trap Door3 or<br>  ○ AGR System – Advanced Guard Rail4.<br>• Person assembling / dismantling tower competent to do so – PASMA trained considered competent. | 4 | 2 | 8 | • Some operations may require additional training (e.g. towers on stairs). |
| 3 | Falling object during assembly / dismantling. | Person assembling / dismantling tower.<br>Person near tower.<br>Person struck by object. | • Persons in area to be limited to those actively engaged in assembling / dismantling the tower.<br>• Persons assembling / dismantling the tower to wear impact resistant hard hats and safety footwear. | 4 | 2 | 8 | • If area cannot be kept clear, then warning signs, pedestrian barriers or marshals made be needed whilst assembling / dismantling. |

[3] 'Through-the-trap' –operator takes up a position in the trap door of the platform, from where they can add or remove the components which act as the guard rails on the level above. It is designed to ensure that the operator does not stand on an unguarded platform.

[4] Advance guard rail system – where temporary guard rail units are locked in place from the level below and moved up to the platform level. They are in place before the operator accesses the platform to fit the permanent guard rails.

| # | Hazard(s) identified | Who might be affected and how | Existing controls & measures | Severity (a) | Likelihood (b) | Risk Rating (a x b) | Additional control/action required |
|---|---|---|---|---|---|---|---|
| 4 | Missing components or scaffold incorrectly assembled.<br>Unauthorised alteration of tower | Person using tower.<br>Person near tower.<br><br>Tower unstable, topples over.<br><br>Fall from height. | • Tower compliant with BS EN 1004:2004 - instruction / information specifying design and construction.<br>• Pre use inspection by person competent to do so – PASMA trained considered competent.<br>• Post modification inspection before use by person competent to do so – PASMA trained considered competent.<br>• Record of the inspection made and retained until superseded by the next inspection - displayed on the scaffold – commercial systems such as Scafftag available. | 4 | 2 | 8 | • Additional inspections if tower exposed to circumstances liable to compromise the installation. Examples might be:<br>○ Harsh weather conditions;<br>○ Struck by something;<br>○ Uneven ground;<br>○ Vandalism;<br>○ etc. |
| 5 | Tower subject to environmental or other conditions that impact stability or structural integrity.<br>Tower modified incorrectly between use. | Person using tower.<br>Person near tower.<br><br>Tower unstable, topples over.<br><br>Fall from height. | • Users carry out daily visual inspection to ensure no obvious defects.<br>• Weekly inspection carried out by person competent to do so - PASMA trained considered competent.<br>• Record of the inspection made and retained until superseded by the next inspection - displayed on the scaffold – commercial systems such as Scafftag available. | 4 | 2 | 8 | • More frequent inspections if the tower scaffold is exposed to harsh conditions (e.g. wind, heavily used, etc.).<br>• Some operations may require additional training (e.g. towers on stairs). |

| # | Hazard(s) identified | Who might be affected and how | Existing controls & measures | Severity (a) | Likelihood (b) | Risk Rating (a x b) | Additional control/action required |
|---|---|---|---|---|---|---|---|
| 6 | Tower user cannot safely access platforms for example due to missing ladders or intermediate platforms, or lack of space.<br>User carrying materials up ladder does not have three point contact with access equipment at all times. | Person using tower.<br>Person near tower.<br>Tower unstable during access / egress, topples over.<br><br>Fall from height during access / egress. | • Tower compliant with BS EN 1004:2004 - safe system for platform access / egress – this will usually be a vertical ladder that aligns with platform trapdoors.<br>• Comprehensive instruction / information specifying design and construction. | 4 | 2 | 8 | • Persons must not climb outside of the tower or lean a ladder against the tower –it can make the tower unstable.<br>• Person needs both hands free – if tools need to be carried, then provide a safe means to do so (e.g. tool belt, rucksack) |
| 7 | Missing guardrails and/or toeboards. | Person using tower.<br>Person near tower.<br><br>Fall from height during platform use.<br><br>Fall of objects from platform. | • Daily user checks to ensure all required components, including toeboards and guardrails, are in place.<br>• Comprehensive instruction / information specifying design and construction.<br>• Tower compliant with BS EN 1004:2004 - platform fitted with toe boards around edge.<br>• Persons in area to be limited to those actively engaged in work carried out on the tower.<br>• Persons working on the tower to wear impact resistant hard hats and safety footwear.<br>• Persons in area to be limited to those actively engaged in working on the tower. | 4 | 2 | 8 | • If guard rails or toe boards are missing, then the tower must not be used – such a tower should fail any inspection.<br>• If the area cannot be kept clear whilst work is in progress, then warning signs, pedestrian barriers or marshals made be needed. |

| # | Hazard(s) identified | Who might be affected and how | Existing controls & measures | Severity (a) | Likelihood (b) | Risk Rating (a x b) | Additional control/action required |
|---|---|---|---|---|---|---|---|
| 8 | Tower unstable due to height or other factors, including wind.<br>• | Person using tower.<br><br>Person near tower.<br><br>Tower becomes unstable and topples over.<br>Fall from height for tower users.<br>Persons nearby struck by tower. | • Tower compliant with BS EN 1004:2004 - assembled in accordance with instruction /information.<br>• Inspection regime operating.<br>• Tower height limits not exceeded.<br>• Tower platform weight limits not exceeded.<br>• Tower resting on firm level ground with locked castors / base plates supported.<br>• Tower stabilisers / outriggers used as per instructions.<br>• Tower stabilisers / outriggers and feet adjusted to contact ground – dependent upon tower. | 4 | 2 | 8 | • Towers scaffolds are relatively light and if used outside the wind can have an inordinate effect – consult the information / instructions. |
| 9 | Work activities on the tower cause it to topple over. | Person using tower.<br>Person near tower.<br><br>Fall from height for tower users.<br>Persons nearby struck by tower. | • Do not combine or lean other equipment on the tower as this can cause instability. Examples might be<br>o Ladders;<br>o Trestles;<br>o Access equipment;<br>o etc.<br>• Tower scaffold to be appropriately “tied in” where a risk of toppling is identified. | 4 | 2 | 8 | • Do not operate equipment which exerts a high force as this can cause the tower to become unstable during use. Examples might be:<br>o High pressure water hoses;<br>o Sand blasters;<br>o etc. |

| # | Hazard(s) identified | Who might be affected and how | Existing controls & measures | Severity (a) | Likelihood (b) | Risk Rating (a x b) | Additional control/action required |
|---|---|---|---|---|---|---|---|
| 10 | Tower topples whilst being moved.<br>• Struck by falling tower. | Person using tower.<br>Person moving tower.<br>Person near tower. | • Tower compliant with BS EN 1004:2004 - only move if the information / instruction permits, otherwise dismantle and move.<br>• Reduce tower height to 4 metres or less.<br>• Check for overhead obstructions, reduce the tower height so as to clear them.<br>• Check there are no overhead electrical sources / cables, reduce tower height so as to clear them.<br>• Check that the ground is level and free of potholes – if the surface isn't flat and smooth, then dismantle and move the tower.<br>• Exert force on the tower base only.<br>• Clear the working platforms of equipment.<br>• Never move the tower whilst anyone is on it.<br>• Persons in area to be limited to those actively engaged in moving the tower. | 4 | 2 | 8 | • If area cannot be kept clear, then warning signs, pedestrian barriers or marshals made be needed whilst moving the tower. |

| # | Hazard(s) identified | Who might be affected and how | Existing controls & measures | Severity (a) | Likelihood (b) | Risk Rating (a x b) | Additional control/action required |
|---|---|---|---|---|---|---|---|
| 11 | Proximity to an overhead power line may cause the tower to become electrically live. Tower or tower occupants come into contact with overhead power lines, causing user to suffer an electric shock. | Person using the tower. Person in contact with the tower. | • Follow guidance in "Avoiding danger from overhead power lines" published by the Health and Safety Executive.<br>○ High voltage electrical current can jump across air gaps, and depending on the voltage exclusion zones are needed to prevent this. | 2 | 2 | 4 | • |

| **Assessor signature:** | **Print name:** | **Date:** |
|---|---|---|
| | | |