



# Home Builders Health and Safety Forum

## Guide to a Scaffold Specification

Final Draft for Approval

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### **Purpose**

This guide has been prepared by the Home Builders Health and Safety Forum to improve the quality of scaffold structures on home building sites and to enable scaffolding contractors to consistently apply appropriate standards.

The document is intended for use by Health and Safety Forum member companies that have a responsibility for the management, use, monitoring and provision of scaffolding.

Where the principals and criteria detailed in this specification are applied (i.e. to scaffold elevations less than 10.5m in length and with a maximum height of 6m to the working platform), the independent scaffold structure will be considered appropriate for homebuilding purposes. Any alteration or deviation away from this specification and associated designs will require further design consideration such as detailed in TG20.

The information is provided in the form of a generic scaffold specification template. The standard home building scaffolding designs are set out in the appendices. Forum members have agreed that they will develop their own management systems so that the principals of this specification template can be implemented in their own organisations. It may be the case that some will have individual requirements which go beyond the standards detailed.

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### 1.0 General

- 1.1 For the purposes of this specification 'the Company' will be the Employer/Principal contractor and the 'Contractor' will be the designated scaffolding contractor.
- 1.2 Where a scaffold design and stability calculations are required, these must be undertaken by a competent person. An erection, use and dismantling plan must be drawn up i.e. method statement, including design drawings of scaffold requirements.
- 1.3 System scaffold should be erected and dismantled in accordance with the manufacturers or suppliers user guide. This must be available to the scaffolders on site and a copy held in the site office. Any proposed alterations or modifications to the manufacturer's user guide should be designed by a competent person.

### 2.0 Standards

- 2.1 All scaffolds must be constructed in accordance with the current relevant BS, EN, Construction (Design and Management) Regulations, Work at Height Regulations, and current Industry Technical Guidance notes (i.e. TG20 and SG4), irrespective whether or not detailed in this specification.
- 2.2 Consideration must be given to the wind loadings on scaffold. Eurocode BSEN 1991 1-4 should be used to determine wind loads and the scaffold structure designed and constructed accordingly.
- 2.3 Any anomalies between this specification and current health and safety regulations should be notified in writing by the Contractor to the Company.
- 2.4 It is the Company's responsibility to provide suitable ground conditions for the scaffold to be erected and the ground is clear of debris before the contractor commences work. However, the Contractor should be satisfy themselves the ground conditions are as agreed and the area for scaffolding work is clear of debris. The erection of scaffold signifies that the Contractor is satisfied that the ground is suitable for the erection of the scaffold. Designs should specify leg loads to assist the Company to maintain the correct ground condition, to adequately support the scaffold.
- 2.5 Setting out will be the responsibility of the Contractor in agreement with the Company, and on consideration of the site traffic/pedestrian management plans. Particular attention must be given to door openings, so clear access is available, the locations of loading bays/ladders/staircases, and balconies.
- 2.6 The number of scaffold lifts per plot or housetype will be determined by the company on a site by site basis.

### 3.0 Materials

- 3.1 The Contractor must ensure that all scaffold components are satisfactory for use, and conform to the relevant British Standards (BS) and European Standards (EN).
- 3.2 For system scaffolds, materials must comply with the National Access & Scaffolding Confederation (NASC) code of practice for the hire, sale and use of system scaffolds.
- 3.3 All components for system scaffolds must comply with BS 12810:2003 and be able to withstand all loadings as described in the manufacturer's user guide.
- 3.4 All scaffold tubes must be galvanised and comply with BS EN 39:2001 and to be marked in such a way as to identify the scaffolding company who own them.
- 3.5 All scaffold boards must meet the requirements of BS 2482:2009.
- 3.6 All scaffold fittings must comply with BS EN 74-1:2005.

### 4.0 Timber Frame Construction

- 4.1 All scaffold structures for timber frame construction must be designed accordingly so that the stability of a scaffold is achieved by independent means i.e. other than ties to the building or structure. A competent scaffold designer should be employed by the Contractor who will detail the measures to be put in place to take into account the stability of the scaffold and any wind forces it may be subjected to. Stability can be achieved via a number of measures including self-weight, adding guys, anchors, outriggers or kentledge.
- 4.2 The Contractor is required to provide a detailed design, including plan and elevations, and will include details of bay size, lift heights, allowable loads, bracing positions, loading bay positions, leg loads and tie locations/detail.
- 4.3 If during the construction phase the design needs to be altered and the structural stability of the scaffold is likely to be affected, the contractor must ensure the design is reviewed by the scaffold designer and if necessary revised design details issued.
- 4.4 Scaffold for timber frame construction must be set as close to the structure as practicable and adequate external and internal fall prevention measures must be in place.
- 4.5 Where the scaffold structure is being built progressively together with the erection of the timber frame building, ties to the ring beam of the timber frame can be used providing the building designer/manufacturer or company has given approval for their use and the part completed structure can accept any loads imposed by the ties.

### 5.0 Scaffold Base

- 5.1 All scaffold standards must be placed upon suitable base plates and sole boards. The company must ensure the ground conditions provide adequate support for the scaffold standards.
- 5.2 Sole boards must be a minimum of 450mm x 225mm x 35mm but the size may need to be increased depending on leg loads and/or ground conditions.
- 5.3 Base plates and sole boards must be provided on, level ground and must be able to be inspected at all times.
- 5.4 Where working platforms/birdcage scaffolds are erected on suspended, and or beam/block floors sole boards must be installed.

### 6.0 Ladder access to Working Platforms

- 6.1 Where proprietary/scaffold staircases are not erected, the maximum height to a working/intermediate platform via a ladder should not exceed **4m**. Ladders should comply with BSEN 131.
- 6.2 Where ladders are provided for access these should be parallel to the façade and must benefit from a self-closing gate or other protective means at the entry point to the working platform.
- 6.3 If internal ladders are provided, the access points through the working platform should be designed as such to prevent unprotected openings. Where openings are unavoidable these should be protected with a hatch or other appropriate means of preventing falls through the access point (clearly marked). Where a ladder protrudes through a working platform, the remaining width of the platform must be at least 450mm (two boards) x 600mm long maximum.
- 6.4 All ladders should be positioned, where possible, on the opposite elevation to the loading bay to assist in the safe management of vehicle and pedestrians.
- 6.5 Ladders must be adequately secured, to prevent sideways and outwards movement, at the correct angle of 75° and extend 1.05m above any landing point.
- 6.6 All ladders to scaffolding are to be supplied by the Contractor and must be maintained in good condition.

### 7.0 Scaffold Ties and Bracing

- 7.1 Unclad scaffolds elevations with elevations less than **10.5m** in length and no more than **6m** in height (working platform) can be erected as a progressive access scaffold without ties to the structure as long as they comply with the designs as detailed in appendices of this specification. It is recognised that one unsecured table lift may be erected which may be above 6m to complete gable ends etc.

However, this may not be appropriate on exposed sites subject to the effects of wind and this should be assessed in accordance with the criteria in TG 20.

The scaffold must be tied or rakered if partial dismantling or discontinuity of any elevation is likely to take place.

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On all elevations scaffolds must benefit from façade bracing on the outside standards within every six bays, and ledger bracing fitted to alternate pairs of standards at all lifts unless a transom device approved by the company is fitted which by design removes the requirement to provide ledger bracing.

- 7.2 If the criteria in 7.1 cannot be met then the scaffold must be secured to the supporting structure and/or rakers installed and the method confirmed as part of the plan for the work i.e. method statement. Any ties must commence within 3m of the base of the scaffold and at least 50% of ties must be fixed to ledger braced standards.
- 7.3 Any tube and fitting scaffolds which do not meet the above criteria must be constructed in accordance with the design criteria detailed in TG20.
- 7.4 Suitable tying patterns are defined with the latest edition of TG20, the relevant system scaffold user handbook and/or the design drawing. Ties may only ever be removed/replaced/repositioned by the contractor with any such movement recorded and incorporated within hand over certificates and design drawings as appropriate. The contractor must ensure that the removal/repositioning of ties does not affect the structural stability of the scaffold, this may necessitate revised design calculations.
- 7.5 Ties must be evenly distributed over the scaffold (horizontally and vertically), connected to both the inside and outside standards and, as a minimum, must be fitted;
- i on alternate standards.
  - ii at alternate levels with a maximum vertical spacing of 4m.
  - iii at the top platform level for sheeted and debris netted scaffolds.
- 7.6 All concrete/masonry anchors that are used for the installation of scaffold ties must be tested in accordance with a proof load of 1.25 times the required tensile load of 6.1kN. There should be a minimum of 3 anchors tested per scaffold or 5% of total number of ties whichever is the greater. Confirmation of the tests must be arranged by the Contractor and provided to the Company.
- 7.7 A standard tensile proof load of 6.1kN x 1.25 must be used as a minimum for anchor ties, unless a greater proof load as otherwise stated by design and wind loadings as stipulated in TG20 or as detailed in relevant system scaffold manual is required.
- Standard ties are ties with a safe load in tension of 6.1kN
  - Heavy duty ties are ties with a safe load in tension of 12.2kN

**8.0 Working Platforms**

- 8.1 All scaffolds must be set out so that working platforms are close boarded and where reasonably practicable there are no excessive gaps. (It is accepted for example that on a 4:2 configuration, the gap between the main working platform and the inside boards can be 50mm providing an assessment of risk is undertaken to establish controls to prevent materials falling on persons who may pass underneath).
- 8.2 All working platforms or access points must benefit from appropriate edge protection, which includes (note: this does not include kicker/blocker lifts up to a height of 500mm):
- Top guardrail must not be fixed at a height less than 950mm and secured to every standard with load bearing couplers (right angled couplers).
  - A mid/intermediate rail so that the gap between it and other means of protection does not exceed 470mm and secured to every standard with load bearing couplers.
  - Toe boards shall be suitable and sufficient to prevent the fall of any person, any material or object. In all cases toe boards must be a minimum of 150mm in height from the working platform, secured to all standards with a minimum of two fixings to each toe board to prevent any movement.
- 8.3 The standard configuration for a homebuilding scaffold is a class 3 General purpose scaffold and the required configuration will be confirmed by the Company prior to commencement of work or will be in accordance with the system scaffold manual.

Load Class	Uniformly distributed load on platform kN/m <sup>2</sup>	Max number of platforms in use (udl kN/m <sup>2</sup> )	Max bay length (mm)	Max spacing boards transoms (mm)	Max number of boards
3	2.00 (inside boards 0.75)	One full (2.00) and one half (1.00)	2100	1200	4+1 4+2 5+1 5+2

- 8.4 Working platforms must be set as close as practicable to the structure and should aim to be less than 225 mm away from the building.
- 8.5 Internal guardrails on tube and fitting scaffold:
- Where internal service gaps in excess of 225 mm are present between the working platform and structure (including at door and window openings) then further risk assessment should be undertaken to establish suitable fall prevention/protection controls and any work within the internal guardrail be controlled by appropriate safe systems of work, supervision and training (depending on the service gap). The service gap must be managed at all times.



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- 8.6 Internal guardrails on system scaffold:
- Where possible all guardrails should remain in place and rough casting etc. should be conducted from behind the guardrails.
  - Guardrails can be removed by a scaffolder for rough casting operations etc. where gaps are up to but not exceeding 225mm.
  - Where neither of the above methods are possible then reducing the hop up by 1 board is acceptable, provided that there is another set of hop ups on the lug directly below, closing the potential fall from height. Hop-ups in these circumstances can be removed/replaced by competent persons.
- 8.7 Scaffold boards which are secured (or guardrails or toeboards) must be installed by the Contractor and secured at window/door openings where there is a gap which exceeds 225mm and there is a risk of fall.
- 8.8 Brick guards must be provided by the Contractor on all working lifts which are secured to the guardrails and their lateral movement prevented. They must be capable of supporting the weight of any materials liable to fall against them. This can be achieved by a proprietary guardrail/toeboard system if this is deemed appropriate.
- 8.9 The maximum distance from the top of the fascia board to the working platform for access and fall protection for roofers is 450mm. The width of the platform (from the outer edge of eaves or roof overhang) should be a min of 900mm. On roofs with a pitch 40 degrees or more, the platform width may need to be either increased depending of the findings of the risk assessment (eg. 5 boards extending beyond the eaves overhang) or alternatively additional guardrails installed on the external edge of the working platform (over and above those detailed in 8.2) with no gaps in excess of 470mm between any guardrails. This will be confirmed by the Company prior to erection of scaffolding on each plot.
- 8.10 The external working platform provided for access and fall protection should be set as close as reasonably practicable to the height operatives will be working (and this should not be more than 1000mm i.e. below the top of floor joists etc). Where this cannot be achieved and at the instruction of the Company, additional guardrails may be required around the perimeter of the work location or additional scaffold lifts/kicker lifts erected. A hop/step up must be provided by the Contractor to enable access from a working platform to a work location.
- 8.11 Any internal fall prevention/protection measures adopted should where possible be provided prior to the erection of the external scaffold lifts.
- 8.12 The top of internal standards should be flush with any working platform, where this is not possible they should protrude a minimum of 1m and be capped by the Contractor. Standards must not be left protruding through birdcage scaffolds. The platforms must be free of tripping hazards.
- 8.13 All handover certificates should be accompanied by compliance sheets (where required) and state working loads on all working platforms.

- 8.14 Internal Platforms (hop-ups) must be protected with appropriate guardrails and toeboards. The inner platform may be raised or lowered by a maximum of 500mm. A maximum of one inner platform may be raised or lowered per elevation of scaffolding. At the ends of working platforms where hop-ups are used, additional guardrails will be needed to prevent falls from the end of the working platform or hop-up, if the hop-up is raised or lowered above the main working platform.

### 9.0 Scaffold Boards

- 9.1 Boards for use in system scaffolds should conform with manufacturer's instructions.
- 9.2 Boards for tube and fitting scaffolds must be graded to BS 2482. They must be 38mm x 225mm and end bands must be fixed using nails or staples along the side or edge of the board and teeth, staples or nails may be used to secure the ends.
- 9.3 Knots or knot clusters on the face of any board shall not exceed  $1/3^{\text{rd}}$  the board width at any cross section. Knots on both edges of the boards shall not exceed 28mm and there shall be at least 150mm of clear timber along the board length between knots.
- 9.4 Any board that has a split that is more than 12mm deep and 225mm in length must not be used. Splits of less than 225mm may be repaired using nail plates. Note: Splits running across the face of a board are not permitted.
- 9.5 Short boards (less than 2.13 metres long) are to be secured to prevent displacement.
- 9.6 Other than at returns of scaffolds, lapped boards are to be avoided as far as reasonably practicable.
- 9.7 The scaffold boards on the internal edge of the working platform must be secured to prevent becoming dislodged at a minimum of two points along the length of the board.

### 10.0 Loading Bays

- 10.1 All loading bays should be constructed to a design either as detailed in TG 20 or as in the appendices to this specification. This includes garages where the main loading bay cannot be utilised.
- 10.2 The design for a standard home building tube and fitting scaffold is for a maximum load of 2no 1.5 tonne pallets of material acting on one lift at any one time, and a maximum load on the adjacent working platform of 2.0kN/m<sup>2</sup> acting on one lift at any one time.
- 10.3 For system scaffold, loading bays must be constructed to the design detailed in manufacturer's instructions. If the manual does not have a loading bay design then one is to be designed by a competent person.
- 10.4 All loading bays must be fitted with guardrails, toeboards (see 8.2) and brickguards. Loading bay gates must be provided that protect operatives from the exposed edge when in an open position and prevent falls of operatives and/or materials when in a closed position. Maximum loading signs should be fixed to the gates.
- 10.5 All loading capabilities to be detailed in handover certificate.

### **11.0 Truss Racks**

- 11.1 A suitable truss rack should be provided by the Contractor when instructed by the Company. If a freestanding rack is provided it should meet the detail in the appendices of this specification or alternatively a design approved by the Company.

### **12.0 Waste Chutes & Material Hoists**

- 12.1 Where requested by the company, the contractor will provide suitable waste chutes with a proprietary hopper which is secured to the scaffold by an appropriate and approved bracket.
- 12.2 All material hoists to be installed in accordance with the suppliers guidelines and by competent persons.
- 12.3 A competent scaffold designer should be consulted before moving machinery is to be connected to the scaffold e.g. hoist. This should be done within the parameters of a client's brief.

### **13.0 Bridging for Access to the Structure.**

- 13.1 Where requested by the company, the contractor will erect the scaffold so that access can be maintained to the structure via for example a door opening.

### **14.0 Erection/Dismantling Procedures**

- 14.1 Prior to commencement of operations a detailed safe system of work for the erection, alteration and dismantling of all scaffold (including loading bays) must be submitted by the Contractor in sufficient time for it to be reviewed by the Company. This must include details of arrangements for emergencies i.e. rescue of someone who falls whilst attached to a harness etc.
- 14.2 Where the erection of system scaffolds is being undertaken, the specific manufacturer's erection guide must be available on site, with a copy provided to the Company.
- 14.3 Scaffolds should be erected/alterted/dismantled using collective fall prevention systems such as advanced guardrails or step-up devices where reasonably practicable. The type of technique to be used is to be detailed in the method statement for the erection/alteration/dismantling of scaffold.
- 14.4 All scaffolding erection/alteration/dismantling/alteration works to be carried out in accordance with the latest version of SG4
- 14.5 Harnesses should be visually inspected daily by the user and a weekly inspection must be undertaken and recorded, these records must be available for inspection on each site. Harnesses should be thoroughly examined by a competent person every three months with evidence presented to each development on which the Contractor is engaged.

### 15.0 Temporary Cladding Materials

- 15.1 Where materials are fixed i.e. debris netting, monoflex, advertising signage to the structure, the scaffold must be designed by a competent engineer who will evaluate potential wind loading and the requirement for ties. The materials i.e. debris netting, monoflex, advertising signage must be secured to the outside of the standards by the use of a system which is designed to snap on 50kN of force.
- 15.2 Where required by the company flexible materials used to clad scaffolding may need to conform with the requirements of Loss Prevention standard LPS1215.

### 16.0 Incomplete Scaffolds

- 16.1 The Contractor **must** provide a system of identifying incomplete working platforms. Where working platforms are deemed incomplete, access to the working platform must also be prohibited by the Contractor by removing the access point, or providing a physical barrier e.g. ladder lock. Signs warning that the scaffold is incomplete should be placed appropriately to warn of danger.
- 16.2 The Contractor must ensure that access to locations; being erected, modified or dismantled are controlled and this is to include protection to those at the base of the structure.

### 17.0 Training and Supervision

- 17.1 All Scaffolders both labour only and supply and erect must have been trained and accredited to the Construction Industry Scaffolders Record Scheme (CISRS) for the particular scaffold being erected i.e. either tube & fitting or system scaffold. The following levels of accreditation are permitted;
- CISRS Labourers Card only for those assisting trained scaffolders i.e. drivers or loading out from ground level. (Labourers are only allowed to work at ground level, or on a fully completed working platform).
  - CISRS Trainee Scaffolders – Only applicable to those working with a qualified scaffolder, and is going through a process to complete part 1, training for tube & fitting. Card is only valid for 18 months from date of issue.
  - CISRS Scaffolders – Must hold the required card for the type of scaffold being erected i.e. system or tube & fitting or working towards accreditation via the approved route.
  - The erection of all design scaffolds outside the scope of this specification must be supervised on-site by a scaffolder with a CISRS advanced scaffold card.
  - For system scaffold each operative must provide evidence that they have undergone a minimum two day training course appropriate to the system scaffold being erected on site.
- 17.2 Any Contractor engaged in the erection and dismantling of proprietary working platform systems, must have received formal training as defined by the manufacturers/suppliers, this must include a practical demonstration/assessment.

### 18.0 Handover of completed Structures/inspections

- 18.1 A handover certificate must be provided by the Contractor every time a scaffold is erected, altered or modified. The structure is not deemed satisfactory until a competent person (this must be someone independent of who has undertaken the erection) has carried out an inspection and completed the statutory register.
- 18.2 Handover certificates must refer to relevant plots or drawings, permitted working platform loadings and any specific restrictions on use.
- 18.3 The Contractor must be in a position to provide an inspection service for scaffolds if required by the Company and provide appropriate record of the inspection. The scaffold is required to be inspected prior to use for the first time and then every seven days until it is dismantled. It should also be inspected each time it is exposed to conditions likely to cause deterioration e.g. following adverse weather conditions or substantial alteration.