



Scaffold Erection Guidance

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1. **Introduction**

This document outlines the procedures for the erection and inspection of scaffolding on all Ray Seager Scaffolding Ltd. sites. It is a pre-requisite for employment. Any Ray Seager Scaffolding Ltd. Employee found to be working outside of this guidance will find him or herself subject to disciplinary action and may find their contract terminated.

2. **A competent person**

The only people approved to erect, alter, inspect and dismantle scaffolding on behalf of Ray Seager Scaffolding are scaffolders approved by the company.

Approval is given if the scaffolder meets all of the following criteria:

- a) The scaffolder must be trained to C.I.T.B. standard.
- b) The scaffolder must read this document and agree by signature of the acceptance form, to comply with the procedures in it.
- c) The scaffolder must agree to any job specific term and conditions ordered by the customer or Ray Seager Scaffolding.

3. **Hand-Over and Scaffold Inspection**

3.1 On completion of erection of the scaffold or section of scaffold, it will be inspected by a competent person & a handing over certificate will be issued.

3.2 The "competent person" shall be able to demonstrate that he or she has a full knowledge of current legislation and recommended practice.

3.3 The scaffold safety system of scafftag® shall be employed for the inspection of scaffolding on all Ray Seager Scaffolding Ltd. sites.

3.4 It shall be the responsibility of Ray Seager Scaffolding to implement and maintain the scafftag® system according to the following sequence:

At the commencement of scaffold construction, a scafftag® holder shall be installed at every proposed access point, ensuring that:

- a) The "DO NOT USE SCAFFOLD" wording is clearly visible to the user.
- b) The scafftag ® holder is securely connected to the scaffold.

When the scaffold is completed and ready for inspection, the "competent person" shall inspect the scaffold for safe use and, providing the scaffold meets the standard required, the green "SAFE TO USE" card shall be completed by the "competent person" and inserted

into the holder.

A duplicate scafftag ® shall be filled in by the "competent person" who will place it in the box located in an area to be agreed with the customer.

It is essential that, where there is more than one access point onto the scaffold, a scafftag® inspection card shall be installed and maintained at each entrance.

Each scaffold shall hold either a red "DO NOT USE" sign or a green "SAFE TO USE" sign.

4. **Fittings**

- 4.1 Scaffold fittings used by Ray Seager Scaffolding shall comply with BS 1139 - 2.2:1991. Scaffolding fittings and couplers shall, unless in use, be in a lubricated condition.
- 4.2 When required in the construction of scaffolds, fittings shall be neatly temporarily stored near or under the scaffold to be constructed. Surplus fittings shall be removed and stored in the allocated storage compound.
- 4.3 Fittings shall not be thrown to or from work levels. Fittings shall be raised or lowered to and from the work levels by the use of containers adequate in strength for the purpose.
- 4.4 Aluminium fittings shall not be used for steel tube connections.
- 4.5 Only couplers specifically designed and tested to connect tube to steelwork shall be used for such connection. Where such couplers are used, the manufacturers usage recommendations shall be observed. SK couplers may be used for tying but shall not be used for the support of any platform.
- 4.6 Only those fittings with a certified slip load of 12.5Kn shall be classed as load bearing fittings.

5. **Boards**

- 5.1 Scaffolding boards shall be banded or nail plated at both ends and shall comply with the minimum requirements of BS 2482.

Additional to timber defects applicable to the British standard, boards shall be free of defects such as, splits longer than 225mm, paint (unless on identification bands), burns, concrete, notches, nails, warping and excessive knots.

- 5.2 Boards where the timber is coloured grey with age shall not be used.
- 5.3 When required in the construction of scaffolds, boards shall be neatly temporarily stored near or under the scaffold to be constructed. Surplus boards shall be

removed and stored in an allocated storage compound.

- 5.4 Boards shall not be thrown to or from work levels. Unless proper lifting equipment is used and safely applied, boards shall be raised and lowered by hand.

A maximum of 2 boards may be raised or lowered with the use of a rope.

6. **Tube**

- 6.1 Scaffolding tube shall conform to the requirements in BS 1139 part1

- 6.2 Aluminium tube will be allowed on site (but clearly must not be mixed on structures with steel tube) unless specific circumstances make it unsuitable management will advise on such circumstances.

- 6.3 Bent or split tube shall be removed from site.

- 6.4 Tube cut on site shall not be with an electric or fuel driven disc cutter. The ends of the tube shall be squarely cut and free from sharp edges or burrs.

- 6.5 When used in the construction of scaffolds, tube shall be neatly temporarily stored near or under the scaffold to be constructed.

Surplus tube shall be removed and stored in an allocated storage compound.

- 6.6 Tube shall not be thrown to or from work levels. Unless proper lifting equipment is used and safely applied, tube shall be raised and lowered to and *from* work levels by hand.

- 6.7 A maximum of 3 tubes (weighing a total of 50kg) may be manually raised or lowered by rope.

7. **Ladders**

- 7.1 Ladders used on site shall comply with BS 2037.1994.

Additional to these requirements. Ladders shall be free from splits, cuts dents or abrasions, deformity, loose or missing rungs, burns and paint (unless for identification purposes).

- 7.2 When required in the construction of scaffolds, ladders shall be neatly temporarily stored near or under the scaffold to be constructed on a firm and level surface.

- 7.3 Stored ladders shall not be hung so that the ladder is supported by the stile.

- 7.4 Timber ladders grey in colour through age shall not be used.

- 7.5 All ladders must be secured in *two* different points.
- 7.6 Ladders are to be inspected for defects *before* use.
- 7.7 When climbing ladders they must be securely lashed or footed at all times.
- 7.8 Ladders should be set at an angle of 1 in 4 or 75 degrees.
- 7.9 Ladders should extend past the intended landing by at least 5 rungs or 1 metre.

8. **Light line and lifting rope**

- 8.1 Rope used in the raising or lowering of materials shall, if natural fibre, comply with BS 2052 and if man made be of equal strength for the purpose used.
- 8.2 Rope shall be inspected by the user prior to every occasional use.
- 8.3 When required in the construction of scaffolds, rope shall be neatly temporarily coiled near or under the scaffold to be constructed and removed from the work area if not required.
- 8.4 The correct size rope shall be used when reaving blocks or gin wheels.
- 8.5 Rope shall not be stored on platforms.

9. **Base plates and sole plates**

- 9.1 Unless standards are erected off a scaffold mattress or a steelwork base, base plates shall be placed under all scaffold standards.
- 9.2 Timber sole plates shall be required under the base plate of a scaffold standard on all surfaces except concrete.
- 9.3 Where base plates are positioned on sole plates, the centre of any plate shall be no less than 400mm from the end of the timber.
- 9.4 Split or poor quality timber shall not be used for sole plates.
- 9.5 Where sole plates are required, it shall be the responsibility of the erector to prevent scaffold displacement.
- 9.6 The minimum size sole plate shall be 800mm long x 225mm x 38mm thick

10. **Standards**

- 10.1 Standards shall be plumb.

- 10.2 Unless otherwise agreed, bays shall not exceed 2.7m.
- 10.3 Where standards are vertically connected in a lift, the joint shall occur every other standard in each row of standards so that the joints are arranged diagonally opposite.
- 10.4 Hemping joints higher than 2m from the ground shall be with tubes no longer than 5m.
- 10.5 All puncheons shall have at least one safety coupler above the double coupler connection and unless for a simple guardrail support, shall be supported by a raker.
- 10.6 Standards where possible, shall face each other in pairs or lines as the case may be.
- 10.7 If standards are erected in a location where there is a possibility of them being struck by persons or mobile traffic, they shall be wrapped in warning tape to clearly indicate the hazard.
- 10.8 Standards shall not be positioned on manhole covers or similar cavities.
- 10.9 Standards or any tube shall not be stood or moved near live cables.

11 Ledgers

- 11.1 Ledgers shall be connected to the standards with right angle (double) couplers.
- 11.2 Ledgers shall be level.
- 11.3 Base lift heights shall not exceed 2.7m and other lifts shall be at least 1.8m in height to a maximum of 2.0m.
- 11.4 Joints in the ledgers shall be made with sleeve couplers and except for the first lift, shall be connected so that in any bay throughout the scaffold height, the joint occurs every other ledger so that they are diagonally opposite.
- 11.5 Ledgers shall no project more than 765mm past the last standard.
- 11.6 A locking lift is required for all single lift scaffolds, unless the inclusion of such poses a access/egress problem.

12 Transoms

- 12.1 A transom shall be fixed within 300mm of every standard.
- 12.2 Where a scaffold lift does not require boarding and is a "non-working" lift, the

transoms need only occur at standard locations but shall be connected to the standards with right angle (double) couplers.

- 12.3 Where a scaffold lift does require boarding and is a "working lift", the transoms shall be spaced not more than 1.5m.
- 12.4 For birdcage structures, standard location transoms shall have the joints staggered.
- 12.5 All "working lift" transoms shall be positioned directly against the underside of platform boards, so that there is no space between tube and board.
- 12.6 Bridle transoms shall be connected to ledgers with right angle (double) couplers.
- 12.7 Transoms shall not project more than 225mm on the facade of the scaffold.
- 12.8 Needle transoms shall be positioned using only load bearing couplers.
- 12.9 Where transoms are projected to support an "inside board", a maximum of two boards width may be unsupported.

13 Bracing

- 13.1 All Bracing shall be fixed with swivels or right angle couplers, no other fitting except "DH" type coupler shall be used.
- 13.2 All bracing shall be connected within 300mm of nodes. (intersection of standard, ledger and transom).
- 13.3 Only sleeve couplers shall connect continuous braces, unless lapped joints are installed for spigot (joint pin) connections.
- 13.4 The maximum distance between facade brace fittings shall be 3.5m.
- 13.5 All braces shall start at the base of the scaffold and finish up at the last lift and facade bracing shall be fixed at 30m vertical intervals maximum.
- 13.6 Ledger bracing shall occur every other pair of standards, except for towers and one lift birdcage when frequency shall be every row.
- 13.7 In the case of one lift birdcage, bracing shall occur in the direction of ledger and transom and at every 5 bay locations.
- 13.8 Rakers used for the support of ledgers in cantilever or similar situations, shall not be constructed using swivel couplers. Putlog couplers shall not be used for safety couplers (Check Fittings) for this type of work.

14 **Ties**

- 14.1 Unless scaffolds are designed to be self supporting, ties shall commence 3m from the base of the scaffold.
- 14.2 When ties are installed, the tie tube shall be fixed to both rows of standards and be level or sloping down away from the building.
- 14.3 Only load bearing couplers shall be used for ties.
- 14.4 All ties shall prevent both inward and outward movement of the scaffold.
- 14.5 Ties, once installed, shall not be removed.
- 14.6 Buttress rakers used as ties shall not be spaced more than 6m apart. The raking tube shall have an unsupported length of no more than 5m and shall be tied back to the scaffold at the base, or if on soft ground, have a 1.2m tube fixed at the base to prevent sinking.

The construction of buttress rakers shall be done with load bearing couplers.
- 14.7 Ties in scaffolds with returns shall commence no greater than 3m each side of the return.
- 14.8 Sheeted scaffolds under 25m high shall be tied every 4m in length and every 4m in height minimum.
- 14.9 Non sheeted scaffolds under 50m high shall be tied every 6m in length and every 6m in height minimum.
- 14.10 Friction ties (such as reveal) shall not be used.
- 14.11 Ties to steelwork shall be fixed with purpose made couplers and in accordance with manufacturer's recommendations for use.
- 14.12 Only Tubes shall be used for tying.

15 **Platforms**

- 15.1 The width of platforms shall, where practicable, be of legal minimum dimensions.
- 15.2 There shall be adequate access to and from all working levels.
- 15.3 Gaps in platforms shall not exceed 25mm.
- 15.4 Unless otherwise agreed, the maximum loading on all scaffold platforms shall not exceed 1.50kn / m²

- 15.5 Scaffold boards shall project past the last support transom by a minimum of 50mm to a maximum of 150mm.
- 15.6 The maximum number of platforms used shall not exceed two. One additional platform may also be used for light duty work.
- 15.7 Where the projection exceeds 150mm adequate steps shall be taken to prevent access to the projection. Boards shall not project past the end of the scaffold by more than 300mm.
- 15.8 All scaffold boards used in construction of a platform shall rest firmly and evenly on all their supports.
- 15.9 Where lapped boards are used to span a platform gap, the gap shall not exceed 900mm and the boards used for the lap shall be at least 1.8m long, ensuring that the lapped boards are overhung by 600mm past both transom supports of the gap.
- 15.10 Scaffolders in the process of erecting or dismantling scaffolds shall ensure that the platform they are working from is a minimum of three boards wide at all times.
- 15.11 All material shall be uniformly distributed on platforms and shall not be stored above the toe board. Where storage above the toe board is necessary, mesh guards shall be installed.
- 15.12 On external scaffolds, all working platforms above 8m shall be lashed down with the correct lashing, unless the platform is small enough to ensure the same security when toe boards are used to cover all boards on all four sides of the platform

16. **Guardrails and Toe boards**

- 16.1 Double guardrails shall be installed on every platform from which it is possible for a person to fall.
- 16.2 The main guardrail shall be at least 950mm above the edge from which any person is liable to fall.
- 16.3 There shall not be an unprotected gap exceeding 470mm between any guardrail, toe board, barrier or other similar means of protection.
- 16.4 Guardrails shall be installed on all sides of a working platform.
- 16.5 Guardrails shall be fixed to the inside of the standards with right angle (Double) couplers. Putlog couplers may only be used for corner return rails, where a right angle coupler is supporting the lower rail at the corner.
- 16.6 Spigots (Joint Pins) may be used in the connection of guardrails.
- 16.7 Every open side of a working platform shall be fitted with toe boards (or other

barriers) which must be a minimum of 150mm high.

- 16.8 All toe boards must be placed on the inside of uprights.
- 16.9 All toe boards must be fastened to standards or puncheons using putlog couplers. At least two clips per board must be used.
- 16.10 A single guardrail is to be installed on all non-working lifts to enable erection in accordance with SG4:05 Guidance. Where this single guardrail is not installed safety harnesses must be attached at all times.

17. **Ladder access**

- 17.1 Ladder access shall be provided to all working levels and shall be so positioned that unrestricted clearance throughout the access is guaranteed.
- 17.2 Vertical ladders shall only be installed inside the scaffold.
- 17.3 Sloped ladder access shall be fixed at a ratio of 1 in 4 (or 75 degrees).
- 17.4 All ladders shall be lashed to the scaffold at the top working lift (on a stop end handrail or such like, not to a transom) and at one other lower position to prevent sagging and swaying.

Lashing shall be 6mm blue Polypropylene as provided by Ray Seager Scaffolding Ltd.

- 17.5 Putlog couplers shall not be used to secure ladders.
- 17.6 Tubes used in the support of ladders shall be positioned so that the tube cannot be kicked or stood on by the climber.
- 17.7 Ladders shall not pass over or under guardrails to gain access to platforms.
- 17.8 Ladders shall project above the working platform by at least 5 rungs or 1m. Where this is not possible, an adequately supported "grab tube" shall be installed.
- 17.9 Ladders shall rest firmly and evenly on a flat surface and shall not be wedged to provide this requirement.
- 17.10 Climbers shall ensure that grease, mud or other similar hazardous forms, are removed from the underside of their footwear prior to using a ladder.
- 17.11 Wherever possible material shall not be carried up a ladder.
- 17.12 When tying a ladder, the base of the ladder shall be "footed" by another person.

17.13 Where ladders pass through platforms, the opening in the platform shall be no larger than three boards in width or 1m in length.

17.14 The distance between landing platforms shall not exceed 7m.

18. **Gin Wheels**

18.1 Rope and gin wheels shall be provided where required.

18.2 The gin wheel shall be certified for use with the SWL clearly visible.

18.3 Only ring type gin wheels are to be used.

18.4 The lifting rope shall be of good quality and 20mm in diameter.

18.5 The lifting tube shall be connected to two standards with load bearing couplers and the unsupported projection shall be no more than 850mm. A tie shall be positioned no more than 4m from the lifting position.

18.6 The gin wheel shall be fixed at a position no greater than 765mm from the last supporting standard and shall be prevented from sliding by fixing to the supporting tube on both sides of the ring.

18.7 The person tying and lifting equipment shall wear the relevant P.P.E. and should be fully conversant with all relevant knots and hitches.

18.8 The area where equipment is to be lifted from or to shall be cordoned off

18.9 A load no greater than 50kg shall be manually lifted.

18.10 Rope shall not be used for climbing or descending purposes.

19. **Suspended and steelwork supported platforms.**

19.1 The scaffolder shall ensure prior to erection of steelwork supported scaffolds, that the steel frame support is capable of supporting all intended loads from the scaffold.

19.2 Only tubular members shall be used for drop scaffolds.

19.3 The "standards" in drop scaffolds shall be connected within 300mm of node points.

19.4 There shall be safety couplers installed in drop scaffolds to prevent slip in all "standards", tubes and platforms.

19.5 Where putlog couplers are used for the transoms of drop "working scaffolds", there shall be additional transoms installed at standard locations below the lowest platform and fixed to the standards or ledgers using right angle (double) couplers.

- 19.6 Movement in drop scaffolds shall be prevented in all directions.
- 19.7 Where standards are erected up from steelwork, they shall be located next to steel nodes, or be supported back to steel nodes.
- 19.8 Drop scaffolds shall only be supported by structural steel framework.
- 19.9 "Lay-down" scaffolds shall be constructed to ensure that guardrails are prevented from outward movement.
- 19.10 Mechanical plant or machinery shall not be stored on scaffolds.

20. **Alloy Towers**

- 20.1 All alloy towers used shall conform to BS 1004:2004.
- 20.2 The manufacturer's recommendations shall be observed.
- 20.3 All Tower components shall relate to the identity colour code of the design.
- 20.4 Unless recommended by the manufacturer the frames shall not be used for climbing purposes.
- 20.5 Locking pins shall be used to connect the frames together vertically.
- 20.6 All horizontal and diagonal brace locking devices shall be operational.
- 20.7 Standard and trap door platforms shall be correctly positioned and firmly secured ensuring supporting hooks are not damaged.
- 20.8 Ensure guardrail hooks house on the inside of frame standards and that toe boards are installed correctly.
- 20.9 Unless recommended by the manufacturer, steel fittings shall not be used in the construction of alloy towers.
- 20.10 Castors and adjustable legs shall be operational and designed not to drop out of the frame base.
- 20.11 Mobile towers shall not be pushed or pulled above the base level, and when moving towers, consideration shall be given to overhead obstructions and dangerous installations.
- 20.12 Alloy towers shall not be erected or dismantled in, or subjected to blustery weather conditions.
- 20.13 The base dimension, if extended, shall conform to manufacturer's recommendations

regarding out-riggers or stabilisers and maximum height ratios.

20.14 Alloy tower components shall not be mixed or used with dissimilar makes.

20.15 The sheeting of alloy towers is forbidden.

20.16 If stabilisers and/ or out-riggers are supplied with a tower, observe manufacturers recommendations in the moving of such structures with these components installed.

21. Static and mobile towers

21.1 For steel static or mobile towers the construction shall be with load bearing couplers. Putlog couplers may only be used for the transoms at the top working level.

21.2 Prefabricated towers shall conform to the manufacturer's recommendations and these shall be available for inspection purposes.

21.3 Standard spacing for "tube and fitting" towers shall be a maximum of 2.7m and a minimum of 1.8 m.

21.4 Castor wheels supplied for mobile towers shall be adequately lubricated for easy wheel movement and shall have a locking device for the wheel and a locking device for the standard.

21.5 All mobile towers (steel or alloy) shall be erected on a firm and level base. The ground shall be clear of debris or cavities likely to affect the stability of the tower.

21.6 The maximum height of self-supporting towers shall relate to the smallest dimension of its base.

- a) Mobile towers shall not be erected more than 3 times the smallest base dimension.
- b) Static towers shall not be erected more than 3.5 times the smallest base dimension.

21.7 The platform of any tower shall not extend beyond the tower base dimension.

21.8 Mobile towers shall not be pushed or pulled above the base level, and when moving towers, consideration shall be given to overhead obstructions and dangerous installations.

21.9 No person shall be on the tower when it is moved.

21.10 Mobile towers shall not be erected on sloping ground.

21.11 Base lift shall be installed within 300mm of castor wheels and plan bracing shall be installed at the base and alternate lifts of mobile towers.

22. **Regulations and codes of practice.**

- The Construction Design Management Reg's 2007
- Health and Safety at Work Act 1974
- The Work at Height Reg's 2005
- BS EN 12811-1:2003 (Access and working scaffolds and special structures in steel). BS 1139 (Scaffolding Components)
- EN 39 (Steel Scaffold tube)
- BS EN 74-1:2005 (Steel Couplers)
- BS EN 74-1:2005 (Other Fittings and adjustable bases)
- BS EN 1263-2:2002 (Safety Nets)
- BS 8411 2007 (COP for Safety Nets)
- BS 2482 (Specification for timber scaffold boards)

Recently, the NASC Guide TG20:08 has been introduced in November 2008. These procedures will be updated shortly to take into account the recommendations of this guide.