

A11r SCAFFOLDING & PROTECTION

- 100 TO BE READ with Preliminaries, Schedule of Work, and Site Access Plan (as appropriate), which have been prepared specifically for this Contract.
- 110 GENERALLY: this Specification sets out the trade materials and workmanship requirements for the repair work in the Contract, which must be read with the General Conditions and other Contract Documents, particularly those listed above. Where the Contractor is required by this Specification to provide details of proposed sub-contractors or suppliers, these must be supplied with their tender. Where method statements, drawings, samples and other proposals are required, these must be supplied at least three weeks in advance of the work commencing. These dates should be indicated on the Contractor's programme.

MATERIALS

- 120 METAL SCAFFOLDING: To BS 1139; Section 1.1: 1990; Part 2: 1982; Section 2.1:1991; Part3:1983; Part 4;1982: Part 5;1990. All scaffolding and couplings to be hot dip galvanised to BS 729.
- 130 TIMBER SCAFFOLD BOARDS: To BS 2482: 2009 re-issued with amendment 1990, 38 x225 softwood with metal end caps. Supply stable boards of moisture content to suit situation. Discard twisted or damaged boards.
- 140 LADDERS: To BS 1129: 1990 and BS 2037: 1994. All ladders to be in good condition. Replace any timber ladders that warp or break.
- 150 SHEETING: Monarflex Flamesafe sheeting with neoprene rubber anchors and straps all as made by Monarflex of Lyon Way St Albans Hertfordshire AL4 0LQ.
- 160 NETTING: Nylon woven green debris netting, with neoprene rubber anchor straps.
- 170 ROOFING SHEETS: To CP 143 or alternative proprietary system as agreed with the CA in writing and during the tender period.
- 180 PLYWOOD SHEETING: exterior quality WBP 19mm thick to BS 6566.
- 185 TIMBER FOR NON-STRUCTURAL USE: sawn softwood, graded to minimum stress grade to BS 4978.
- 190 ANCHOR SOCKETS: Stainless steel, screwed-type with coloured plastic cap to match surrounding surfaces. ONLY TO BE USED WHERE SPECIFICALLY APPROVED BY CA.
- 191 PAINT SYSTEM FOR HOARDINGS: one priming coat of thinned emulsion and two finishing coats of external quality emulsion to approved colour.
- 192 PAINT SYSTEM FOR DOORS TO HOARDINGS: one coat of primer and two finishing coats of external quality gloss oil paint to approved colour.

- 194 PAINT SYSTEM FOR TIMBER CASINGS AND SCAFFOLD POLES adjacent to public walkways: one coat of primer and two finishing coats of external quality brilliant white gloss oil paint.
- 200 WARNING TAPES & STRIPS: Fluorescent and/or striped plastic tape and self-adhesive strips.

WORKMANSHIP

- 300 COMPLY with provisions of BS 5973: Code of Practice for Access and Working Scaffolds and Special Scaffold Structures in Steel, and all statutory regulations.
- 305 PROVIDE, MAINTAIN AND ADAPT all platforms, ladders, hoists, scaffolding, sheeting, hoarding, temporary roofs and protection as necessary for the proper execution of the works including that required for sub-contractors.
Inspect regularly in accordance with the regulations and maintain a record of these inspections on site. Co-ordinate the design and erection of scaffolding with general and sub-contractors' programme and working requirements.
- 320 SCAFFOLD DRAWINGS BY EMPLOYER: Where design drawings and calculations have been prepared before tender, these are to be fully priced in the tender and complied with when erecting the scaffold. The contractor must undertake a check of the drawings and calculations at the time of tendering and notify the CA of any discrepancies or omissions with his tender. He must also notify the CA with his tender if he wishes to vary the design to suit his proposed working method and the cost implications of this. The Contractor will be responsible for the erection and certification of the scaffold once his tender is accepted. Include for the designer to inspect the scaffold on completion and report to the CA. SUBMISSION OF A TENDER WILL BE DEEMED AN ACCEPTANCE OF THE SCAFFOLD DESIGN BY THE CONTRACTOR, and that all costs associated with erection, inspection, maintenance, removal and making-good are included in this tender.
- 325 SCAFFOLD DRAWINGS BY CONTRACTOR: Where the Contractor is required to prepare proposals, submit full details in duplicate to the CA for comment with copies to the Structural Engineer. The proposals are to be of an extent and detail commensurate with the complexity of the Contract and with the degree to which they are critical. Indicate loads from the scaffolding onto the existing structure and demonstrate that the existing building is capable of resisting such loads, undertaking opening-up works as required. Indicate levels of working platforms in relation to the existing building. Submit drawings of any proposals to vary those approved where required. Indicate with tender the name of the scaffolding designer, who is required to inspect on completion and verify to the CA that the scaffolding has been erected in accordance with his proposals.
- 330 CONTRACTOR DESIGN:
The Main Contractor is responsible for ascertaining the requirements of all subcontractors including the use of each platform, the number to be fully boarded,

those to be sheeted, location and purpose of hoists, fans, hoardings, loading bays and the length of time the structure will be in position, together with other relevant information, unless stipulated within the Contract Documents.

The Main Contractor must submit details of the following, when requested to do so:

- Design
- Full set of drawings
- Calculations
- Number and location of working levels
- Loading bays
- Manufacturer's details for specialist equipment such as ladder beams and cluster props, etc.
- Risk assessments
- Method statements covering erection, use and dismantling.

340 SCAFFOLDING CONTRACTOR:

1. The scaffolding contractor should be a member of the National Association of Scaffolding Contractors (NASC).

2. Contractors and subcontractors will have to demonstrate:

- A sound Health and Safety policy
- Adequate Employers and Public Liability insurance

3. Scaffolding operatives should be registered under the Construction Industry Training Board (CITB)

4. Scaffolder's Record Scheme to identify level of competence:

- All operatives are fully trained, registered and competent in activities undertaken.
- All work is adequately supervised by competent trained Supervisors
- Materials conform to the specified standards and are regularly checked and maintained
- Work is carried out in accordance with relevant codes of practice

345 PROGRAMME: Where Clause 225 applies, allow in the contract programme sufficient time for preparation, submission and amendment of the scaffold drawings BEFORE erection of the scaffold. No claim for delay or loss and expense will be considered in respect of a failure to provide adequate drawings in time. In all cases, allow time for safety inspections before the scaffold is used. Erection and striking of scaffold must be programmed to allow CA at least TWO CLEAR WEEKS FOR SCHEDULING REPAIRS before work commences and a further TWO WEEKS AFTER WORK IS COMPLETED for inspection, in each area.

350 TAKE CARE: to prevent damage to the existing building/s, its fittings and furniture. Any damage caused to the building is to be made good to the approval of the CA at the Contractor's expense. Listed Buildings are of national historical and cultural importance and the historic fabric is vulnerable to damage and much of it is irreplaceable. All personnel should be made aware of this and treat the building with great care. When erecting high-level scaffold internally, valuable fittings below the working area (eg, organs, monuments) must be temporarily protected from damage and dirt during erection and striking scaffold, and this must be included in any proposal and programme.

355 ACCESS AND WORKING SCAFFOLDING:

Access and working scaffolding should be designed, constructed and used in accordance with BS EN12811 – 1 : 2003 Temporary works equipment. Scaffolds. Performance requirements and general design and all statutory regulations. Scaffold structures will normally fall into one of two categories:

- Standard scaffolds
- Specific scaffolds

360 STANDARD SCAFFOLDS

-This category includes putlog and independent tied scaffolds. Putlog scaffolds will not be permitted.

-Un-sheeted independent scaffolds, where no loading rating is specified, may be constructed up to a height of 50m without calculations providing they are constructed in accordance with BS EN 12811 – 1 : 2003 and that they do not carry greater loads nor have greater bay lengths than those given in the table below.

Duty	Use of Platform	Load on Platform (kN/m ²)	Max No. of Platforms	Commonly used widths using 225mm boards	Max Bay Length (m)
Inspection and very light duty	Inspection, painting, stone cleaning, light cleaning and access	0.75	1 working platform	3 boards	2.7
Light Duty	Plastering, painting, stone cleaning, glazing and pointing.	1.50	2 working platforms	4 boards	2.4
General Purpose	General building work including brickwork, window and mullion fixing, rendering, plastering.	2.00	2 working platforms + 1 at very light duty	5 boards or 4 boards + 1 inside	2.1
Heavy Duty	Blockwork, brickwork, and heavy cladding.	2.50	2 working platforms + 1 at very light duty	5 boards or 5 boards + 1 inside or 4 boards + 1 inside	2.0
Masonry	Masonry work,	3.00	1 working	6 to 8 boards	1.8

or special duty	concrete, blockwork and very heavy cladding		platform + 1 at very light duty		
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370 SPECIAL SCAFFOLDS

These will include all access and working scaffolds other than those identified under standard scaffold limitations. All special scaffolds should be designed by a competent person.

These will generally cover:

- Cantilever scaffolds
- Protection fans
- Cantilever loadings bays
- Truss out scaffolds
- Freestanding towers
- Power line crossings
- Guys and struts
- Access birdcages
- Hoist towers
- Ladder towers
- Stair towers
- Slung scaffolds
- Pedestrian bridges and walkways
- Temporary ramps and elevated roadways
- Masts
- Lighting towers
- Transmission towers
- Lifting gantries
- Temporary buildings
- Temporary roofs
- Spectator terraces and seating stands
- Temporary storage on site
- Sheeted scaffolds including open mesh sheeting
- Scaffolds deriving lateral support from buttressing
- Scaffolds including a standard bearing on a bridging beam or bracing

380 WIND LOADING: To be in accordance with BS 6399: part 2: 1997. It is anticipated that the scaffold shall be in position for no longer than 4 weeks.

385 PLATFORMS:

Standards to be designed and erected to allow a minimum of two clear scaffold boards width between them and the building elevation or elevational details such as window heads, cornices etc.

The access scaffold is to be completely boarded out at each lift level. Around the exterior envelope handrails and toe boards will be required. Ensure that boards are fully

supported and lie flush, to prevent traps, particularly at ladder holes. Allow boards immediately adjacent to walls to lift out.

- 390 PLATFORM LOADS: Shall be appropriate to the designation of the scaffold given in the Schedule or Preliminaries and the type of work to be carried out. Any 2 levels may be fully loaded at any one time. The Contractor should allow for the worst condition. Coordinate with sub-contractors at design and tender stages the loading required for working platforms and storage of materials on the scaffold.
- 400 ROOF LOADS: to be in accordance with BS 6399: part 3: 1988
- 410 SUPPORT STRUCTURE OF SCAFFOLD: The support structure of the scaffold should be concentrated as necessary to leave the area adjacent to the building as free as possible for use by the contractors.
- 420 INDEPENDENT SCAFFOLD: Wherever possible provide self supported independent scaffolds, braced against imposed and wind loads within itself or, if necessary, by minimum number of points of contact to the existing building, with clear unobstructed access routes and working lifts.
- 430 KENTLEDGE: Where required the scaffold will be held down with Kentledge. The contractor should provide details of the proposed Kentledge for approval. The following will not be acceptable; scaffold tubes, water containers, ground anchors.
- 440 RESTRAIN SCAFFOLD: as far as possible by end returns and use of box and lip ties. Restrict the use of reveal cramps. Any points where the scaffold 'butts' the building must be protected with a polystyrene or felt pad and ply packers, designed to be removable for periods during the Contract in order to allow repair work behind. Tying-in through windows will not be allowed. Restraint sockets drilled into the external walls will only be permitted with specific written approval of CA at design stage, when each position must be agreed. Load test existing sockets before use and leave capped sockets on completion for future use. Indicate clearly method of tying on drawings and provide record elevation drawings of any sockets on completion of the works.
- 450 BOARD OUT every lift required for the work. Set out lifts to suit principal features of elevations and avoid cutting across windows. Ensure that boards are fully supported and lie flush, to prevent traps, particularly at corners and ladder holes. Supply stable boards of moisture content to suit situation. Discard twisted or damaged boards. Allow boards immediately adjacent to the walls to lift out. Use double boarding with tarpaulin sheeting sandwiched between where scaffold overhangs paths and pavements and to form fans. Use double boarding covered with rubber matting over lowest lift of boards in occupied internal situations.
- 460 SAFETY: provide adequate rails to all scaffold lifts, walkways and existing parapets for the safety of personnel during works. Securely tie all ladders at a safe angle with adequate headroom, guardings and without obstructions or pole ends near the route of ascent/ descent. Take adequate precautions, e.g. kickboards, to prevent any material falling from the scaffold. Clear all loose items, e.g. tubes, fittings, poles, boards, etc., from the scaffolding as it is constructed and on completion. Ensure loose materials

and equipment are cleared from the scaffold at end of each working day during the Contract. Ladders at ground floor level and other risk areas should be removed and securely locked away at the end of each working day. Any intention to store materials, e.g. roofing tiles, on the scaffold must be clearly stated with the Contractor's proposals. Provide storage platforms separate from access routes as required for the works

- 480 PERMISSIBLE BEARING PRESSURE: Ensure that the permissible bearing pressure of the ground or of the building structure below the scaffold is not exceeded. Set standards on scaffold board to spread the load, taking care not to block drains, rainwater channels or outlets. Where founded on soil, set on timber railway sleepers or similarly sized treated timbers as sole plates. Provide protection to underlying stone, leadwork, asphalt, etc. with 50mm polystyrene and 19mm plywood as base for scaffold supports.

Tubes bearing on masonry should be provided with suitable timber bearers and/or foam packers. Against leadwork, felt or other suitable packing should be used between the timber and leadwork.

- 490 COVER EXPOSED TUBE ENDS of those closer to the building than 50mm with plastic caps.

All scaffold tube ends which are near or likely to come into contact with the fabric of the building during erection, dismantling or as a consequence of lateral movement should be provided with plastic end caps.

Agree all points of contact between the scaffold and the building with the CA. Where butting is permitted provide detail of padding to butt to avoid damage to fabric. Assume minimum of 50mm polystyrene and 19mm plywood. Keep ends back at least 100mm from any glazing. Wrap vulnerable carving or fittings with bubble wrap and cover glass or decorations in rigid sheeting where adjacent to scaffolding.

- 500 PROTECTION OF PUBLIC: Erect scaffolding with members set flush and to suit fixing points for netting. Fix Monarflex sheeting or nylon debris netting, as scheduled, to the scaffold full height stretched flat, overlapped at junctions and clipped at one metre centres with proprietary neoprene rubber straps. Maintain in position throughout the Contract. Sheet the lowest 2.4m of the scaffold with plywood where this forms the site boundary or as shown on the site plan or scheduled.

- 510 PUBLIC ACCESS:
During erection, modification or dismantling, care must be taken to exclude the public and staff from a clearly defined area around the work.

Authorised access thoroughfares must have effective protection in the form of fans, netting, sheeting, brickguards, etc., to protect persons from falling objects.

Ladders must not be left unattended when accessible to the public.

- 520 PAINT: Hoardings and casings, poles fixed to the outside face of the scaffolding and all poles which they obstruct or are close to paths and roads to a height of 2m. Provide fluorescent tapes where the public are at risk.

- 530 **LIGHTING & SECURITY:** Provide vandal-proof light fittings at corners and at 5m centres along the length of the scaffold and hoarding controlled by time clock switches to maintain adequate lighting for safety of the public and personnel. Provide PIR controlled security alarm and lighting to the hoarding and scaffold to deter illegal access. Sign the outside of the hoarding accordingly. Where required link the alarm to a security company control centre and arrange with the police for response to the alarm outside working hours.
- 540 **FIRE ESCAPE:** Do not obstruct means of escape routes from the site or adjoining buildings unless alternative routes are provided, signed and agreed in writing with the CA.
- 550 **LIGHTNING PROTECTION:**
EARTH ALL SCAFFOLDS AND PROVIDE TEMPORARY LIGHTNING PROTECTION.
- Bond scaffold to suitable lightning conductor terminal(s) driven into the ground or in pits in positions agreed with the Architect to comply with the requirements of BS 6651. Test connection(s) and continuity through scaffold on completion of the contract. Provide details of lightning protection proposed with the tender and to the approval of the Architect.
- All scaffolding and temporary structures must be adequately earthed against lightning strikes, or bonded into the existing installation and is to be carried out by an approved lightning conductors specialist.
- 560 **ALLOW SUB-CONTRACTORS** and others employed directly by the Employer, free use of scaffolds. Ensure that all users of scaffolds are aware of the maximum load for which they have been designed.
- 570 **UNAUTHORISED ACCESS:** Take all reasonable precautions to ensure that unauthorised persons cannot gain access to scaffolds. Remove and lock up all ladders from the bottom lift of scaffolding and secure all gates each night.
- 580 **WEATHER PROTECTION:** provide temporary protection to areas of building open during demolition, alterations or re-roofing. Where required in Schedule of Work or on Design Drawings, provide temporary roof of rigid corrugated sheeting, laid to falls and draining into temporary rainwater goods. Do not interrupt existing rainwater disposal and provide temporary drainage if necessary. Prevent temporary rainwater discharge ponding in the compound or saturating the building or working area.
- 590 **WIND UPLIFT:** Design the scaffold to resist wind loadings, particularly uplift on any temporary roof, for the calendar period named in the Schedule of Work, including any exceptional gusts given the locality of site. Refer to MET Office predictions and statistics. If none stated, assume a 12-month period including winter conditions.
- 600 **HOARDINGS & PROTECTION:** Where required in Schedule of Work or on Design Drawings, install painted plywood hoardings 2.4m high with top boards and gravel boards to surround the compound along the line shown on the drawings. Provide

temporary access gates and crossovers as necessary. Apply for any licences required from the local highway authority or the Police and include for any costs. Provide security and lighting in-accordance with Clause 350. Protect trees, planting, gates, railings, walls, pavements, monuments and other features, internally and externally, from accidental damage during the works and clear away on completion. Make-good any damage on completion. Provide a method statement to the CA for comment beforehand and do not commence any stripping-out or work until protection has been completed and inspected by CA and approved in writing. Especially vulnerable or valuable fittings, fixtures or decorations are to be protected as described in the specialist method statements prepared by consultants before Tender.

- 610 HOIST: Where Scheduled or shown on the design drawings, provide powered lift from ground level to top scaffold lift with fully enclosed cage and level access at each lift. Install and maintain in accordance with all current regulations. Size hoist to suit size and weight of components to be used in the repair works.
- 620 TRANSFER SCAFFOLDING COMPONENTS BY HAND, PULLEY OR HOIST. THE DROPPING OR THROWING UPWARD OF COMPONENTS IS FORBIDDEN.
- 630 LADDERS: Provide ladder access for full height of scaffold and not so located to interfere with access to the face of the building. Position to be agreed with the CA. Ladders to extend a maximum of one scaffold lift at one time.
- 640 CLEARANCES: Clear access is to be provided to all doorways at all times unless otherwise agreed with the CA in writing. The lifts immediately above all openings are to have plywood sheeting and polythene sheeting placed below the scaffold boards to prevent any debris falling.
- 650 FIXINGS/TIES: Scaffold to be fully independent with no physical fixings into the fabric unless absolutely necessary and then only as agreed with the CA. Butts will be permitted subject to details of how the fabric will be protected (i.e., foam cushions).
- 660 MOBILE SCAFFOLD TOWERS:
 -Mobile scaffold towers should be designed and used in accordance with HSE Guidance Note GS42.
 -If a static tower is to be free standing (that is not tied to a building), the maximum height to base ratio, is 4:1 for use inside a building and 3:5:1 for use outside buildings.
 -If a mobile tower is to be free standing, the maximum height to base ration, is 3:5:1 for use inside a building and 3:0:1 for use outside the building.
 -The minimum base dimensions can be increased, and stability improved, by the use of outriggers or stabilisers.
 -The recommended maximum height for a free-standing tower is 9.6m when mobile and 12m when static.
- 670 TREES: Comply with the requirements of BS 5837, 1991, when erecting scaffolding close to trees; protect the base of each tree and do not lop or damage branches without approval from the CA. NB trees may be protected by a Preservation Order in which case it is an offence to cut them without approval and any work must be carried out by an experienced tree surgeon.

680 CONTROL OF WORK ON SITE:

-Notwithstanding the overall responsibilities of the Main Contractor for site activities and health and safety, adequate supervision must be provided by the Scaffolding Contractor at all times during erection and dismantling of scaffolding and temporary structures.

-Designers of special scaffolds should, under the terms of contract, be required to attend site on the first day of erection to liaise, and brief the Scaffolding Supervisor on the requirements of the design.

-Designers should be required to emphasise that any variations to the design will not be permitted, without the designer's written authority. Any agreed variations must be clearly documented and must go through the Main Contractor and Planning Supervisor to be checked by a competent person.

-Designers should also be required to visit the site at least weekly during erection. On completion the Designer should certify (on F91 part 1 section A) to the Main Contractors that the scaffold has been erected full in accordance with the design and any approved variations. Copies of the certification should be passed to the Planning Supervisor.

-All scaffolds and structures should be inspected at least every seven days (and after weather conditions likely to have affected their strength or stability) by a competent person.

-Records of such inspections together with necessary action must be made in register F91 and signed by the person making the inspection.

-No alterations must be made at any time without written authority from the Designer and the Main Contractor.

-At all times during erection, dismantling or alteration to scaffold structures, access to the working areas needs to be clearly defined by suitable barriers and notices. Notices wording "incomplete scaffold" should be secured as necessary in an appropriate place.

-It is a wise precaution to stop all work on external scaffolding during a thunderstorm.

690 DO NOT REMOVE scaffolds without the approval of the CA. When approval has been given, clear away all scaffolding components and sole plates; leave the site tidy and make good any damage to roadways and soft landscape. Ensure that the scaffold boards and the faces of the building are swept clean progressively as the scaffold is taken down and avoid dust and debris being left on the face of the building. If necessary damp down scaffold boards before taking-down.