QAIM
STRUCTURES

297 Nine Mile Ride,
Finchampstead,
Wokingham RG40
3NL

Specification for Structural Works

Job number. 0998

Date: October 2025

General

1. Do not scale from the drawings. The Contractor is to check all dimensions on site before carrying out works.

2. This specification is to be read in conjunction with the Architect's and all other Consultants' drawings and specifications, which should be used to verify layout, setting out, finishes etc. Any discrepancies are to be brought to the attention of the Architect prior to construction.

3. Where notes in the specification differ from the drawings and details, clarification should be sought from the Engineer.

4. The Contractor is to inform the Architect and Structural Engineer if the existing fabric, including foundations, is opened up and found to be inadequate, unsuitable to support the proposed works, or at variance from the details shown on the drawings.

5. Items noted on the drawings "to be confirmed on site" are to be exposed by the Contractor for inspection by the Structural Engineer at the earliest opportunity.

6. Do not cut any holes or chases through any structural members without first obtaining the written consent of the Structural Engineer.

7. The Contractor must check whether a CDM Coordinator has been appointed and if not, they must inform the Health and Safety Executive of the works by filling in and submitting an F10 form prior to starting work on site.

8. The Contractor must ensure that the Contract Administrator has agreed all necessary Party Wall notices prior to carrying out works under, on or adjacent to a Party Wall.

9. The Contractor is to ensure that the Building Control Officer and Structural Engineer are notified to carry out inspections of any structural work prior to covering up with finishes.

10. This specification and design uses Eurocodes which is cited in Building Regulations part A & is the current best practice. All Contractor design using loads from our design is to be similarly compliant with Eurocodes unless agreed otherwise in writing. Nothing excluded from this outline specification will relieve the Contractor of his duty to carry out the work in accordance with current good practice and standards.

Temporary Works

1. The Contractor is entirely responsible for maintaining the stability of all existing buildings and structures, within and adjacent to the works, and of all the works from the date of possession of the site until practical completion of the works.

2. The Contractor shall design, install and maintain all necessary temporary works and shall submit proposals for the temporary supports and sequence of construction for the works, to the Structural Engineer and Contract Administrator at least 10 working days prior to starting on site. These proposals shall be supported by design calculations unless agreed otherwise by the Structural Engineer in writing.

Stability

1. The Contractor is to accept full responsibility for the stability and structural integrity of the works during the Contract and provide temporary support as necessary. They shall also prevent overloading of any completed, partially completed or existing elements.

Tolerances

1. All tolerances are to be agreed with the Architect and in accordance with their drawings and specifications, and the Contractor will be responsible for ensuring that sufficient tolerances are provided and integrated throughout all elements of the works.

2. The Contractor is to take account of tolerances detailed elsewhere in all relevant project drawings and specifications when complying with the above clause.

3. Unless otherwise indicated on the drawings and specifications provided by the Architect or Engineer the setting out dimensions and levels of the finished structural works shall be within the maximum tolerances given below.

Description	Maximum Tolerance
All dimensions of 3m and over	+/- 5mm
All dimensions less than 3m	+/- 3mm

Materials and Workmanship

1. All articles, materials and goods shall be new and of good quality, suitable for the required purpose and shall conform to the appropriate Eurocode, British Standard (if still applicable), or other applicable quality standard where such exists. Where references to the above are made it shall be inferred that the latest edition applies, together with subsequent amendments, unless otherwise specified.

Excavation and Filling

1. Before beginning any excavation the Contractor must ensure that they have located any live services in the neighbourhood of the intended excavation.

2. No excavation within 3 metres of an existing foundation is to be taken below the level of the existing foundation unless a method statement has been agreed in writing with the Engineer.

3. The Contractor must not excavate below the level of the underside of a Party Wall foundation within 3 metres, or undermine the bearing of a Party Wall foundation within a 45 degree line from the edge of the base within 6 metres until all necessary Party Wall awards are in place and method statements have been agreed.

4. The Engineer and Building Control Officer shall be given the opportunity of examining all excavations, filling and hardcore before they are concreted or covered up. The Contractor shall give at least 24 hours' notice of when excavations will be ready for inspection. If a good foundation bearing is not obtained at the level shown, the Engineer is to be informed.

5. Excavations shall not be left exposed longer than necessary in order to avoid deterioration from the weather or other causes, and if necessary they should be protected. In clay formations the excavations shall not be left exposed for more than 24 hours. If the formation deteriorates it shall be cleaned out and reformed to the Engineer's satisfaction before any concrete is placed.

6. The Engineer is to be informed immediately if any significant change in strata occurs at formation level.

7. Hardcore for filling shall consist of selected clean broken stone, concrete, hard sound brick, slag or other approved materials, and shall be chemically inert. The materials shall be broken down to a maximum 75mm gauge with a sufficient proportion of fines for thorough compaction. Hardcore shall be

well consolidated by means of roller, vibrating plate or mechanical punner. Care shall be taken to ensure that no damage is caused to any foundations, walls or services.

Foundations

1. New foundations have been designed to suit an allowable bearing pressure not exceeding 100kN/m^2. The Contractor is to ensure that all new foundations bear onto an even natural bearing formation of undisturbed subsoil and is to notify the Building Control Officer for their inspection before concreting.

2. If the Building Control Officer requests amendments to the foundations or if conditions differ from those noted above, the Contract Administrator and Structural Engineer are to be notified immediately. The Contractor shall not proceed without receiving instructions from the Contract Administrator.

3. Foundations are to be cast symmetrically about piers, stanchions, or walls, unless noted otherwise on the drawings.

4. In the absence of any detailed testing information for clay soils, depths of new foundations are to be designed in accordance with National House Building Council (NHBC) Standard Chapter 4.2 Building Near Trees, assuming a highly shrinkable clay soil.

Masonry

1. Workmanship is to comply generally with BS EN 1996-1-1, 2 & 3. Brickwork to be to BS EN 772-3 & 7 and BS EN 771-1. Blockwork to be to BS 6073-2.

2. New brickwork above the damp proof course (d.p.c.) is to be minimum class 3 set in 1:1:6 (cement:lime:sand) mortar, unless noted otherwise on the drawings.

3. New blockwork is to be minimum strength 7.0 N/mm^2 set in 1:1:6 (cement:lime:sand) mortar, unless noted otherwise on the drawings.

4. Brickwork and blockwork are to be laid properly bonded as agreed with the Architect and fully bonded into existing masonry. All junctions in structural walls are to be fully tooth bonded unless agreed otherwise.

5. All masonry below the d.p.c. is to be set in 1:3 (Cement:Sand with plasticiser) mortar with sulphate resisting cement.

6. New brickwork below the d.p.c. is to be Class B engineering bricks.

7. New blockwork below the d.p.c. is to be Dense and specified as suitable for such use by the manufacturer, and of minimum strength7.0N/mm^2, or as noted otherwise on the drawings.

8. Do not use frozen materials or lay masonry when the ambient air temperature is at or below 3°C and falling or unless it is at least 1°C and rising.

9. Unless noted otherwise on drawings or Architects specification, Cavity wall ties shall be Ancon Staifix RT2 stainless steel ties (or similar equivalent) to BS EN 845-1:2003 spaced at 450mm centres vertically, 900mm centres horizontally staggered, and at 225mm centres vertically at 225mm from all openings, corners and reveals. Minimum embedment to be 62.5mm into each masonry leaf.

10. Wall ties elsewhere are to be, to BS EN 845-1:2003, as noted on the drawings. Minimum embedment to be 62.5mm into each masonry leaf.

11. Bricks and blocks shall not be stored on any floor without first obtaining written consent from the Engineer. The Contractor shall ensure that the loadings imposed on the permanent works by the storage of materials does not overstress any part of the permanent works or cause excessive deflection.

12. In dry weather, bricks are to be soaked in water before being laid, and tops of walls to be raised are to be similarly soaked before work is recommenced.

13. Brickwork and blockwork is to be carried up in a uniform manner and is to be raked back and not toothed up, no section rising more than one metre above the remainder. Brickwork built with standard 65mm bricks shall rise at the rate of four courses to 300mm. No more than sixteen courses shall be built in a day without prior permission of the Engineer.

14. Crack control brick reinforcement is to be provided over doors, over and under windows and at changes in profile (e.g. where the building steps from two storeys to one storey), as follows: 2 layers of Bekeart Bricktor in the two bed joint immediately adjacent to the opening. To extend 600mm beyond the opening on both sides and 600mm either side of the change in profile.

15. Vertical movement joints should be provided in masonry walls built with cementitious mortar to minimise the risk of major cracking, as shown in the following table:

Material	Joint Width (mm)	Normal Spacing
Clay brick	16	12m (15m maximum)
Calcium silicate brick	10	7.5 to 9m
Concrete block and brick	10	6m
Any masonry parapet wall	10	Half the above spacing and 1.5m from corners (double the frequency)

The spacing of the first movement joint from a return should not be more than half of the above dimension.

Provide flat straight stainless steel ties within the joint at 225mm vertical centres de-bonded with sleeves over one half. Joints to be filled with suitable compressible material with minimum 10mm deep weather proof sealant to the external leaf. In cavity walls, provide cavity wall ties (as clause 9), at 225mm centres vertically within 225mm of either side of the joint. Positions of joints to be agreed with the Architect prior to construction.

16. Steel columns, posts and proprietary windposts to be tied to internal block leaf within cavity walls using Halfen HTS framing cramps at 225mm vertical centres, or similar equivalent product, fixed to steel in accordance with manufacturers specification.

17. Proprietary wall starter systems such as Furfix or similar may be used to tie new masonry extensions to existing masonry in locations where approved by the Structural Engineer.

18. Use proprietary head restraints as detailed by Halfen or Ancon to tie tops of internal block walls to the underside of concrete floor slabs.

19. All masonry walls to be restrained by timber floors and roofs with lateral restraint straps at 1200mm c/c as noted in the Timber specification section.

Concrete

1. Materials and workmanship are to comply generally with BS EN 1992-1-1 and BS EN 13670.

2. Mass concrete foundations to be designated concrete FND 2 unless a site investigation is carried out with testing of ground water to prove sulphate levels are Class 1 or below. Ground bearing slabs to be designated concrete C20/25 with mesh as noted on the drawings, cast on a well compacted hardcore sub-base.

3. All reinforced concrete not in contact with the ground to be designated concrete C28/35 to BS 8500 and BS EN 206-1 with CEM1 OPC to BS EN 197 and 20mm max aggregate. All reinforced concrete in contact with the ground such as foundations or retaining walls to be constructed in designated concrete C28/35 using sulphate resistant cement and 20mm max aggregate to BS 8500 and BS EN 206-1.

4. The Contractor shall provide details of all admixtures to be used in the concrete and agree their use with the Engineer before any concrete is delivered to site.

5. Concrete for padstones is to be 2:3:6 (cement:fine sand:coarse sand) nominal mix, with OPC and 10mm max aggregate.

6. Ready mixed concrete must be obtained from a plant which holds a current Certificate of Accreditation under the Quality Scheme for Ready Mixed Concrete.

7. Site-mixed concrete may be used when agreed with the Engineer. An agreed pre-batched and bagged proprietary concrete must be used unless an alternative site batched concrete has been agreed with the Engineer.

8. Do not place concrete when the ambient air temperature is less than 5°C and take all necessary measures to ensure that the temperature of the placed concrete will not fall below 5°C for the specified curing period.

9. Concrete Cubes to be tested for compressive strength for all reinforced concrete elements. 3 samples per pour or per 50m^3. One 7 day test, one 28 day test and one sample for future testing if required. All tests to be carried out by UKAS accredited laboratory or equivalent. Testing to BS EN 206-1, annex B and BS 8500-1, annex B. Results are to be submitted to the Engineer within 5 working days of test.

10. The Contractor is to provide suitable curing for all concrete elements to comply with the requirements of BS 8110-1:1997 table 6.1, or Eurocode Equivalent.

Table 6.1 - Minimum Periods of Curing and Protection

Type of cement	Ambient Conditions after casting	Minimum periods of curing and protection	
		Average surface temperature of concrete	
		5˚C to 10˚C	*t* ˚C (any termperature between 10˚C and 25˚C)
		Days	Days
CEM I 42.5 or CEM I 52.5 to BS EN 191-1	Average	4	$\frac{60}{t+10}$
SRPC 42.5 to BS 4027	Poor	6	$\frac{80}{t+10}$
All cements indicated in Table A.17 of BS 8500-1:2002 except for CEM I 42.5 or CEM I 52.5 to BS EN 197-1, SRPC 42.5 to BS 4027 and supersulphated cement.	Average	6	$\frac{80}{t+10}$
	Poor	10	$\frac{140}{t+10}$
All	Good	No special requirements	

NOTE 1 Abbreviations for the type of cement used are as follows:
CEM I 42.5 : Portland cement (class 42.5) (see BS 12);
CEM I 52.5 : Portland cement (class 52.5) (see BS 12);
SRPC 42.5 : Sulphate-resisting Portland cement (class 42.5) (see BS 4027).
NOTE 2 Ambient conditions after casting are as follows:
good : damp and protected (relative humidity greater than 80%; protected from sun and wind);
average : intermediate between good and poor;
poor : dry or unprotected (relative humidity less than 50%; not protected from sun and wind).

11. All holes shall be formed and all inserts cast in at the time of pouring concrete. No part of the concrete works shall be drilled or cut away without the approval of the Structural Engineer.

12. Reinforcement shall be:
(i) deformed bars to BS 4449:2005, grade B500, prefix H (or T) on drawings and schedules
(ii) mesh to BS 4483

13. Reinforcement shall be fixed adequately using tying wire or steel clips. Concrete cover is to be as specified on the drawings. Reinforcement chairs and proprietary spacers are to be provided as necessary to maintain the specified cover. Broken bricks, tiles or other debris must not be used.

14. Unless noted otherwise on drawings, all reinforcement is to be lapped 40d (where d is diameter of the smaller bar).

15. All formwork and supporting members shall be sufficiently strong to resist the pressure of the wet concrete and to ensure that the specified tolerances for the finished work are achieved.

16. Unless otherwise specified by the Structural Engineer or Architect the formwork shall be such that the resulting concrete finish shall be Type A of Clause 6.2.7.3 of BS 8110-1:1997, i.e.:

Type A finish. This finish is obtained by the use of properly designed formwork or moulds of timber, plywood, plastics, concrete or steel. Small blemishes caused by entrapped air or water may be expected, but the surface should be free from voids, honeycombing and other blemishes.

17. The minimum period before striking formwork shall be in accordance with BS 8110-1:1997 table 6.2, or Eurocode Equivalent.

Table 6.2 – Minimum period before striking formwork

Type of Formwork	Minimum period before striking	
	Surface temperature of concrete	
	16°C and above	*t*°C (any temperature between 0°C and 16°C)
Vertical formwork to columns, walls and large beams	12h	300 h *t* + 10
Soffit formwork to slabs	4 days	100 days *t* + 10
Soffit formwork to beams and props to slabs	10 days	250 days *t* + 10
Props to beams	14 days	360 days *t* + 10
NOTE: This table can be applied to CEM I and SRPC of higher cement strength classes.		

Timber

1. TIMBER PROCUREMENT
Timber (including timber for wood based products): obtained from well-managed forests and/or plantations in accordance with:
   - The laws governing forest management in the producer country or countries.
   - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).

   Documentation: provide either:
   - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
   - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.

2. New timber in the works is to be selected structural timber not inferior to European Redwood/Whitewood grade C24 to BS EN 338:2009, unless noted otherwise on the drawings.

3. Timber that in the opinion of the Engineer is inferior in quality or condition or is not suitable for the requirements of the work is not to be used.

4. All existing timber is to be inspected for signs of damage, decay or infestation at the beginning of the project by a specialist. Refer to specialist's report for all information in connection with timber treatment or replacement.

5. New timber in the works is to be vacuum impregnated with preservative to BS EN 1995-1-1 and BS EN 351-1 and the manufacturer's recommendations. Cut ends are to be thoroughly treated with brush applied coats of appropriate preservative before fixing. All preservatives are to be to the Architect's approval.

6. Timber shall be stored under cover, clear of the ground and protected from the weather.

7. Structural timbers may only be drilled or cut for services with the approval of the Structural Engineer. Drill holes and notches in joists to be in accordance with NHBC Standards Chapter 6.4-S9 and BS EN 1995-1-1.

8. Sizes of new structural timbers noted on the drawings are sawn basic sizes.

9. All proprietary joist hangers, straps, connectors etc to be provided by Simpson Strong-tie or Expamet, unless approved otherwise, and shall be fit for purpose.

10. All timber connectors, screws, nails, joist hangers, steel straps etc are to be galvanised or sherardised. All such items are to be fixed in accordance with the manufacturer's recommendations, unless shown otherwise on the drawings.

11. All doubled or tripled up timbers shall be fixed together with M12 bolts or threaded rods at 600mm centres, using double toothplate connectors between timbers, and 50mm square steel washers (3mm thick), unless shown otherwise on the drawings.

12. Unless otherwise specified, securely fix full depth solid timber noggins between joists as follows:

    (i) Joist spans of up to 3.5m: one row at third spans and at the bearings.

    (ii) Joist spans over 3.5m: rows at quarter spans, mid span and at the bearings.

    (iii) At positions of joints in ply sheeting.

13. Wall plates for roofs are to be tied down using 1200mm long 30 x 2.5mm galvanised mild steel straps at maximum 1200mm centres with 100mm bob end. Straps are to be nailed to the top plate and plugged and screwed to the internal face of the wall with a minimum of 3 No.12 wood screws 50mm long.

14. Lateral restraint straps to the perimeter of all floors, roofs and where otherwise noted on the drawings are to be minimum 700mm long 30 x 5mm galvanised mild steel straps at maximum 1200mm centres with 100mm bob end. Straps perpendicular to joists are to be fixed to the tops of three joists over solid blocking infill and notched in a maximum of 6mm. Straps parallel to joists are to be fixed to the side face of the joist. Straps to be fixed with a minimum of 3 (No.12) wood screws 50mm long.

15. Where sections of floor or roof are separated by a steel beam install 1250mm long 30 x 5mm straps at 1200mm c/c for continuity.

16. Where lateral restraint straps for floors are to be tied into existing 215mm thick (min) solid brick walls, cast bobbed end into a 225x100x150dp mass concrete anchor block into pocket and dry packed at top with 3:1 sharp sand cement well rammed in.