

MLUK_403_Kingsgate School Liddell Road specification

11 November 2016

This document includes:

Code	Section	Revision	Dated
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Section Revision History

No.	Purpose	
T1	TENDER ISSUE	1st May 2015
T2	TENDER ISSUE	11th May 2015
T3	TENDER ISSUE	10th Dec 2015
T4	TENDER ISSUE	23rd Feb 2016
A	VE Redesign	29th Jul 2016
B	VE Redesign	5th Aug 2016
C1	CONSTRUCTION	1st Nov 2016
C2	CONSTRUCTION	11th Nov 2016

Clauses amended in Revision C2

No.	Clause	
111	CLAY FACING BRICKWORK	Deleted
395	DAMP PROOF COURSE BRICKWORK	Revised

F10 Brick/ block walling

To be read with Preliminaries/ General conditions.

BREEAM - NOTES ON MATERIALS SPECIFICATION

- External walls shall consist of building elements and materials that achieve A or A+ rating, under BRE's Green Guide to Specification categorisation - please see BREEAM Issue Mat 01 for further information.
- All external hard landscaping and boundary protection shall achieve an A or A+ rating, as defined in the Green Guide to Specification (see also clause 400). Please see BREEAM Issue Mat 02 for further information.
- External walls shall consist of building elements and materials that have been 'responsibly sourced' in compliance with Environmental Management Systems such as ISO 14001 and BES 6001 and procured in line with the appropriate 'responsible sourcing' certification schemes. Please see BREEAM Issue Mat 03 for further information.
- Also refer to Environmental Consultant's 'Contractor's BREEAM Responsibilities & Requirements' document.

TYPES OF WALLING

- 110 CLAY FACING BRICKWORK TO EXTERNAL LEAF OF CAVITY WALL GENERALLY, INCLUDING ALL SCHOOL PLAYGROUND WALLS (MASONRY WALLS AND CLADDING TO RC WALLS.)
- Bricks: To BS EN 771-1.
 - Manufacturer: Engels Baksteen (NL.)
 - UK supplier: Traditional Brick & Stone Limited.
 - Product reference: Mystique EH921.
 - Recycled content: Not applicable
 - Durability designation: F2
 - Active soluble salt: S2.
 - Special shapes: as shown on drawings:
 - pistol bricks to masonry support angles
 - Sample panel required as clause F10/740.
 - Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements:
 - coloured mortar CPI Euro Mix, natural light grey ref. M3ANK100 or similar approved
 - movement joint colour to match mortar colour
 - damp proof course brickwork as clause 395 - location as per drawings .
 - Bond: Half lap stretcher .
 - Joints:
 - 5mm Recessed square joints to facework - Flush joints on window/door reveals .
 - Features:
 - Bed course reinforcement where required by Structural Engineer
 - Weep holes at 450mm centres as F30/133 .

- 112 CLAY FACING BRICKWORK TO BIN STORE WALL)
- Bricks: To BS EN 771-1.
 - Manufacturer: Engels Baksteen (NL)
 - UK supplier: Traditional Brick & Stone Limited.
 - Product reference: Chelsworth Dark .
 - Recycled content: Not applicable
 - Durability designation: F2
 - Active soluble salt: S2.
 - Special shapes: as shown on drawings:
 - pistol bricks to masonry support angles
 - Sample panel required as clause F10/740.
 - Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1:6 cement:lime:sand.
 - Additional requirements:
 - coloured mortar Tarmac, brown grey colour ref. Y73, TBC or similar approved
 - movement joint colour to match mortar colour
 - damp proof course brickwork as clause 395 - location as per drawings .
 - Bond: Half lap stretcher .
 - Joints:
 - 5mm Recessed square joints to facework - Flush joints on window/door reveals .
- 355 CONCRETE COMMON BLOCKWORK GENERALLY
- Blocks: To BS EN 771-3.
 - Manufacturer: Hanson or equivalent approved.
 - Product reference: Submit proposals.
 - Configuration: Group 1.
 - Compressive strength:
 - Mean value: refer to SE drawings and specification.
 - Characteristic value: refer to SE drawings and specification.
 - Category: I.
 - Freeze/ Thaw resistance: Suitable for exposed external use below dpc.
 - Thermal properties: N/A.
 - Recycled content: Submit proposals.
 - Work sizes (length x width x height): 440x140x215mm.
 - Tolerance category: D2.
 - Special shapes: None.
 - Additional requirements: Coursing and bond to allow for ventilation slots for below ground ventilation paths.
 - Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:1/2:4 (class 2).
 - Additional requirements:
 - Sulphate resisting mortar below ground
 - Refer to Structural Engineer's drawings for all necessary structural supports/restraint/fixings etc..
 - Bond: Half lap stretcher.

395 DAMP PROOF COURSE BRICKWORK

- Bricks to BS EN 771-1.
 - Manufacturer: As clause 110 / 112 / 355.
 - Product reference: As clause 110 / 112 / 355.
 - Type: HD.
 - Water absorption: Equal to or less than 4.5%.
 - Net dry density: Equal to or greater than 2200 kg/m³.
 - Freeze/ Thaw category: F2.
 - Active soluble salts content category: S2.
 - Additional requirements: None.
- Mortar: As section Z21.
 - Standard: To BS EN 998-2.
 - Mix: 1:0.25:3 cement:lime:sand, 12 N/mm² (mortar class 12).
 - Additional requirements: CPI Euromix M1AN000 M12 Natural for below DPC - submit sample for approval.
- Bond: Half lap stretcher.
- Joints: as clause 110.

TESTING

400 HARD LANDSCAPING MATERIALS SPECIFICATION

- Minimum BRE 'Green Guide to Specification Online' rating: A+.

410 COMPRESSIVE STRENGTH OF MORTAR FOR EACH WALLING TYPE

- Testing authority: An approved laboratory.
- Test method: BS EN 1015-11.
- Preliminary tests procedure: As follows:
 - Specimens:
 - Number of specimens: 6.
 - Type: 40 x 40 x 160 mm prisms.
 - Preparation: At least six weeks before walling commences.
 - Specimen testing: Half of specimens at 7 days. Remainder at 28 days.
 - Retarded mixes: Extend curing periods to include retardation period.
 - Response to result: If mean compressive strength at 28 days is not within the range given below repeat tests with more suitable sand or next higher designation of mortar.
- Site tests procedure: As follows.
 - Number of specimens: Six per 150m² of walling or per storey whichever the more frequent.
 - Specimen types: As preliminary test, but prepared during construction.
 - Specimen testing: Half of specimens at 7 days. Remainder at 28 days.
 - Retarded mixes: Extend curing periods to include retardation period.
- Required test mean compressive strength at 28 days (N/mm²): To be within the following range:
 - Walling type: F10/110,111.
 - Preliminary tests minimum (N/mm²): 6.5.
 - Preliminary tests maximum (N/mm²): 16.
 - Site tests minimum (N/mm²): 11.
 - Site tests maximum (N/mm²): No value.
- Results: Submit.

415 FRESH MORTAR CEMENT CONTENT

- Test method: BREMORTEST in accordance with Building Research Establishment Information Paper 8/89 .
- Test specimens: Test mortar for the following wall types: F10/ 110, 111 .
- Results: Submit.

WORKMANSHIP GENERALLY

430 CONDITIONING OF CLAY AND CALCIUM SILICATE BRICKS AND CLAY BLOCKS

- Bricks and blocks delivered warm from manufacturing process: Do not use until cold.
- Absorbent bricks in warm weather: Wet to reduce suction. Do not soak.

440 CONDITIONING OF CONCRETE BRICKS/ BLOCKS

- Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
- Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
- Avoidance of suction in concrete bricks/ blocks: Do not wet.
 - Use of water retaining mortar admixture: Submit details.

460 MORTAR GROUPS

- Mix proportions: For a specified group select a mix design from the following:
 - Group 1:
 - 1:0–0.25:3 (Portland cement:lime:sand with or without air entraining additive).
 - 1:3 (Portland cement:sand and air entraining additive).
 - Group 2:
 - 1:0.5:4–5 (Portland cement:lime:sand with or without air entraining additive).
 - 1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1:2.5–3.5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1:3–4 (Portland cement:sand and air entraining additive.)
 - Group 3:
 - 1:1:5–6 (Portland cement:lime:sand with or without air entraining additive).
 - 1:3.5–4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1:4–5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1:5–6 (Portland cement:sand and air entraining additive).
 - Group 4:
 - 1:2:8–9 (Portland cement:lime:sand with or without air entraining additive).
 - 1:4.5 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1:5.5–6.5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1:7–8 (Portland cement:sand and air entraining additive).
- Batching: Mix proportions by volume.
- Mortar type: Continuous throughout any one type of masonry work.

500 LAYING GENERALLY

- Mortar joints: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
- AAC block thin mortar adhesive and gypsum block adhesive joints: Fill vertical joints. Lay blocks on a full bed.
- Clay block joints:
 - Thin layer mortar: Lay blocks on a full bed.
 - Interlocking perpend: Butted.
- Bond where not specified: Half lap stretcher.
- Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

520 ACCURACY

- Courses: Level and true to line.
- Faces, angles and features: Plumb.
- Permissible deviations:
 - Position in plan of any point in relation to the specified building reference line and/ or point at the same level ± 10 mm.
 - Straightness in any 5 m length ± 5 mm.
 - Verticality up to 3 m height ± 10 mm.
 - Verticality up to 7 m height ± 14 mm.
 - Overall thickness of walls ± 10 mm.
 - Level of bed joints up to 5 m (brick masonry) ± 11 mm.
 - Level of bed joints up to 5 m (block masonry) ± 13 mm.

535 HEIGHT OF LIFTS IN WALLING USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR

- Quoins and advance work: Rack back.
- Lift height (maximum): 1.2 m above any other part of work at any time.
- Daily lift height (maximum): 1.5 m for any one leaf.

545 LEVELLING OF SEPARATE LEAVES

- Locations for equal levelling of cavity wall leaves: As follows:
 - Every course containing vertical twist type ties or other rigid ties.
 - Every third tie course for double triangle/ butterfly ties.
 - Courses in which lintels are to be bedded.

560 COURSING BRICKWORK

- Gauge: Four brick courses including bed joints to 300 mm.

580 LAYING FROGGED BRICKS

- Single frogged bricks: Frog uppermost.
- Double frogged bricks: Larger frog uppermost.
- Frog cavity: Fill with mortar.

595 LINTELS

- Bearing: Ensure full length masonry units occur immediately under lintel ends.

635 JOINTING

- Profile: Consistent in appearance.

645 ACCESSIBLE JOINTS NOT EXPOSED TO VIEW

- Jointing: Struck flush as work proceeds.

671 FIRE STOPPING

- Avoidance of fire and smoke penetration: Fit tightly between cavity barriers and masonry. Leave no gaps.

690 ADVERSE WEATHER

- General: Do not use frozen materials or lay on frozen surfaces.
- Air temperature requirements: Do not lay bricks/ blocks:
 - In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
 - In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising.
 - In thin joint mortar glue when outside the limits set by the mortar manufacturer.
- Temperature of walling during curing: Above freezing until hardened.
- Newly erected walling: Protect at all times from:
 - Rain and snow.
 - Drying out too rapidly in hot conditions and in drying winds.

ADDITIONAL REQUIREMENTS FOR FACEWORK

710 THE TERM FACEWORK

- Definition: Applicable in this specification to brick/ block walling finished fair.
 - Painted facework: The only requirement to be waived is that relating to colour.

730 BRICK/ CONCRETE BLOCK SAMPLES

- General: Before placing orders with suppliers submit for approval of appearance labelled samples of the following: All as per F10/110, F10111, F10/112 .
- Selection of samples: Representative of the range in variation of appearance.

740 FINISHED MASONRY WORK REFERENCE PANELS

- General: Before proceeding to construct the following walling types, construct panels as specified. Give notice when panels are dry.
- Selection of masonry units: Reasonably representative of the average quality of the whole order to be delivered .
- Panel types:
 - Walling type: F10/110, Wall Type A, to include following conditions;
 - Typical recessed window
 - Flush window
 - Display window
 - Brickwork corner .

Location: On site, with good light and viewable from 3m distance; Main Contractor's choice to ensure the panel can be retained insitu throughout the construction period .

Size: 1.5 x 1.5 m .

Other requirements: to include window control sample as L10/140, associated reveal, sealant, sill and soffit, a brickwork corner, perpend weephole as clause F30/133, movement joint with sealant as clause F30/610 and parapet coping as section H72 .

750 COLOUR CONSISTENCY OF MASONRY UNITS

- Colour range: Submit proposals of methods taken to ensure that units are of consistent and even appearance within deliveries.
- Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
- Finished work: Free from patches, horizontal stripes and racking back marks.

760 APPEARANCE

- Brick/ block selection: Do not use units with damaged faces or arrises.
- Cut masonry units: Where cut faces or edges are exposed cut with table masonry saw.
- Quality control: Lay masonry units to match relevant reference panels.
 - Setting out: To produce satisfactory junctions and joints with built-in elements and components.
 - Coursing: Evenly spaced using gauge rods.
- Lifts: Complete in one operation.
- Methods of protecting facework: Submit proposals.

780 GROUND LEVEL

- Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works level.

790 PUTLOG SCAFFOLDING

- Use: Not permitted in facework.

831 CLEANLINESS

- Facework: Keep clean. - turn scaffold boards around at end of each workday.
- Mortar on facework: Allow to dry before removing with stiff bristled brush.
- Removal of marks and stains: Rubbing not permitted.