

Method Statement for Flintwork Repairs

Description of existing 1906 Wall

(This is the part of the building where repairs are required)

Red-brick backing wall of solid construction with projecting bath stone dressings as ashlar forming plinth, cill, lintel and jambs as well as ledger stones to break up deep sections of the flint. Stone joints are fine e.g. from 3mm to 5mm. Between these stone dressings the flint work is laid in a random 'artistic' style, that is it is not coursed and is very irregular with pebbles, un-knapped flints, knapped flints (of different colour) and flints knapped to square or oval shapes as a mix of large and small with small fragments of brick and stone in the mix. The joints are not especially tight.

The existing mortar is of rather fine aggregate, becoming loose and dusty. Where flints have come away it is clear that the depth of the flint facing is quite shallow with tails from the flints sometimes touching the brick backing and poorly bonded allowing trapped moisture to settle in pockets against the inner wall.

It has been noted that in character, the plinth section contains many rounded pebbles and there are very few in the upper levels. Also the pointing has been taken close to the face of the flints at the top of the building under the protective eaves overhang and gives a helpful model for the depth for new pointing to aim for.



Description of 1939 Wall

Red-brick backing wall of solid construction with projecting bath stone dressings as ashlar forming plinth, cill, lintel and jambs as well as sand-stone ledger stones to break up deep sections of the flint. Stone joints are fine e.g. from 3mm to 5mm. Between these stone dressings the flint work is laid in a traditional manner with medium sized flints with a knapped face. These are tightly packed.

It seems probable that the masons engaged on the later extension were better skilled in traditional flint-work but also that the random effect of the original building was deliberate if not well-carried out.

Flint selection.

There is some freedom as the 'flint' selection at (the original building of) Church House is not homogenous including various colours, granite, sandstone, brick-fragments, knapped, knapped to squared flint and raw unknapped flint and rounded pebbles. This mix is evident near the base of the wall and more uniform knapped flint at the top. Existing 'fallen' stones should be reused. There are a couple of places (in the plinth area) where cement has been packed into an area where stones have been lost and this should be rebuilt with flints with some rounded pebbles in the mix.

Flints can be set very close together, or in a more random, open fashion. Unknapped flints require more mortar than knapped flints. In flushwork, which has to be constructed freehand, the moisture

content of the mortar should be increased due to the narrow joints, to allow the mix to be rubbed into the joints. As soon as the pointing starts to set, excess mortar is removed from the flints with a small trowel.

Jointing round the flints should be discrete with no trowel marks. The surface should be tamped back with a stiff brush to reveal a clean edge to the flint unit as this will match the existing effect.

Base mortar mix.

(moderate to severe exposure) 1 part moderately hydraulic lime (NHL 3.5) to 2½ parts well-graded sharp sand.

(moderate exposure) natural hydraulic lime (NHL2) 1 : well graded sharp sand 1.5 : porous limestone 1. The aggregate mix should have a wide variation of sizes e.g. 4-5mm angular brick fragments to fill up the spaces around the back of the flint. Good colour match is essential. The existing seems to be a pale buff-grey which appears to work for the bath stone as well as the flint. Sections of new work should be no greater than 600mm high to ensure adequate slow drying out.

Inappropriate mortar should be cut out in much the same way from flint masonry as from other traditional masonry, although the depth of cutting out may need to be increased. Sharp tungsten tipped chisels should be used. If an aggressive mortar has been placed to some depth, which is unusual, it may help to carry out some 'stitch drilling' with a masonry drill first. The flints and backing need to be well wetted and if new flints are being used they need to be soaked in clean water before being placed. Mortar must be placed with great care, ensuring thorough compaction and filling of all irregular voids, and the final pointing needs to be cured slowly. During the curing process any shrinkage needs to be closed up with pointing keys as it occurs. Successful work cannot be carried out unless a suitable range of tamping tools and pointing irons is available.

Shelter Coat

The sand-stone ventilation stones at the base of the building are very badly decayed. The proximity of the tarmac below and projecting plinth edge built in limestone above has concentrated a lot of damp into these unprotected stones and it is probable that there has been some reaction between the different stones. Their original appearance can be deduced from the crisp ventilator stones at first floor level however these may also be cut from superior stone. It is proposed that these be given a shelter coat. Lime treatments and shelter coatings can be applied to a surface to act as a sacrificial layer after repairs and treatment have taken place. They should be breathable and can be colour tinted to match the weathered stone.

Shelter coats are ideal in extreme environments since they provide a sacrificial layer designed to weather and protect the underlying stone, therefore halting decay and prolonging life. It is essential to keep shelter coatings in good repair with regular maintenance. Apply a lime wash with a carefully matched pigment mixed with sieved stone dust.

Bibliography

<u>Flint Walls</u>	SPAB
<u>Chilterns Flint – Supplementary Design Guide</u>	Chilterns Conservation Board
Building Conservation Articles:	
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<u>Stone Consolidation halts decay and prolongs life</u>	Elizabeth Garrod
<u>Matching Mortars for Pointing</u>	Claire Davies
Practical Building Conservation (Vol 1) English Heritage Handbook	
<u>Stone Masonry</u>	John & Nicola Ashurst